

# Biomedical and Nutritional Intervention Training Week 6



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<http://biomedicalnutritionalintervention.com/training/>

## **Week #6 - Healthy Food Regime - Beyond just GFCF**

*Role of Gluten & Casein Peptides*

*Beyond GFCF diet*

*Major Food Culprits causing Neurological Issues*

*Review of Common Food Regimes*

*Dietary Resources*

*Food Recommendations for Breakfast, Lunch, Dinner, Snacks*



Remember the Core  
We Are What We Eat  
We Are What We Eat Eats  
We Are What We Absorb



According to research, over 70% of children with autism have at least one co-existing physical or mental health condition, and 40% have two or more of them. Among children with autism:

- 30-61% have ADHD
- 11-40% have anxiety disorders
- 7% have depression
- Over 50% have chronic sleep problems
- 32% are overweight (2 to 5 year-olds)
- 16% are obese (2 to 5 year-olds)

In addition, kids with autism are 8 times more likely to have gastrointestinal issues compared to those who don't have the condition. And among adults with ASD, 26% have depression and 4-35% have schizophrenia (compared to 1.1% of the general population).

## Mealtime Challenges are Common with ASD

- Food Selectivity and eating problems are reported in up to 46-89% of children with ASD
  - Food Selectivity and refusal, Disruptive Mealtime behaviors
- Food selectivity is observed in toddlers prior to the diagnosis of ASD
  - Slow feeders by 6 m,
  - Picky eating by 15 m (*Avon Longitudinal study, 2010*)
- Food Selectivity persists through adolescence





# Diet and Autism: Proposed Theories

Poor Digestion / Reduced Enzyme Activity



Detoxification:  
© Sulphonation & Methylation

Inflammation in gut  
Reduced integrity of lining



Immunologic Factors /  
Bacteria and Yeast



Absorption of large

Absorption of large peptides:  
Gluten & Casein



Peptides absorbed and cross blood-brain barrier  
Alters brain development  
Alters brain structure

## **Do Dietary Interventions Affect Behavior in ASD?**

- **GI symptoms commonly reported**
- **Food selectivity**
- **Observations around elimination diets and behavior**

### ***Explanations for Empiric Observations- Require Research Support:***

- ***Opioid Hypothesis***
- ***Leaky Gut***
- ***Immunologic Dysregulation***
- ***Alteration of Microbiome***

## Sensory Differences?

People with ASD may be sensitive to variation in taste or flavor perception

- Perseveration vs. sensory sensitivity?
- Genetic predisposition: eg. TAS2R38 and PROP/PTC to sense bitter taste

On the Brief Mealtime Behavior Inventory (BAMBI), increased scores were associated with:

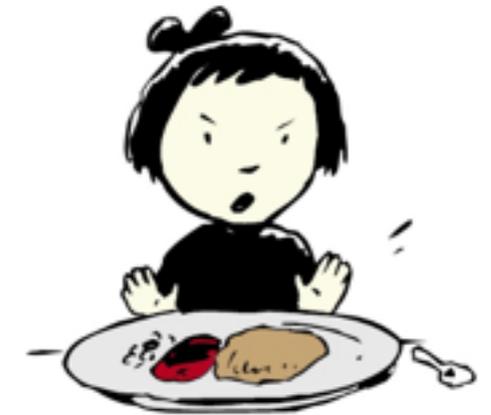
- Increased reported sensory differences on Sensory Profile
- Increased rate of other repetitive behaviors on the Repetitive Behavior Scale, Revised
- AND decreased scores on the Healthy Eating Index

*Johnson et al 2014*



## Food Selectivity (limited variety of intake)

- Perseverative interests/obsessions:
  - texture, temperature, color, brand
- True Sensory differences impact taste and/or smell of food
- Routines
  - Presentation, packaging
- Food neophobia, anxiety with new or specific foods



## Food Refusal

- Oppositional behaviors
- Disruptive mealtime behaviors



## Note: Picky Eating is **Common** in Children with Typical Development, too

Less than 1/3 of all children 3 to 7 yrs of age are *NEVER* perceived as picky eaters (Carruth and Skinner, 2000)

However, children with ASD are more likely to have eaten fewer than 50 foods in the past year (Tanner et al, 2015)

Children with ASD are more likely to be selective on the basis of texture, taste/smell, food mixture, shape but similar to other children on selectivity related to temperature, food touching, color (Hubbard et al, 2014)





# YES food plays a role!

According to research, over 70% of children with autism have at least one co-existing physical or mental health condition, and 40% have two or more of them.

## *Among children with autism:*

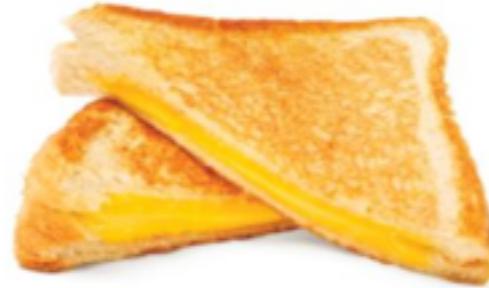
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In addition, kids with autism are 8 times more likely to have gastrointestinal issues compared to those who don't have the condition. And among adults with ASD, 26% have depression and 4-35% have schizophrenia (compared to 1.1% of the general population).

# Yes, THE FOOD YOU EAT MATTERS

- Health and nutrition are intertwined. Hormones, Thyroid, Adrenals, Skin issues, GI issues, weight, focus, energy level and mood can all be affected by what you are eating and drinking.
- Good nutrition is the cornerstone of growth and development for everyone, healthy or ill.
- When nutritional status is compromised, it will directly affect one's health progress, and the lack of critical nutrients can have far-reaching effects.
- With proper nutrition, exercise, relaxation, and sleep, our body's natural rhythms will be supported. By reducing stress levels, our adrenals-thyroid-hormones will work in harmony, and our energy and vitality will be renewed.

# Different Diet Strategies



1. Casein Free
2. Gluten Free
3. Casein + Gluten Free
4. Soy Free
5. Phenol Free
6. Oxalate Free
7. Yeast Free
8. FODMAPS
9. Additive Free



These diets include the following:

Casein-free diet (casein is a protein found in milk; this diet eliminates milk and all by-products of milk)

Gluten-free diet (gluten is a protein found in many grains; this diet eliminates such grains)

Feingold diet (eliminates additives and chemicals)

Specific Carbohydrate diet (removes specific carbohydrates including all grains, lactose and sucrose)

Yeast-free Diet (eliminates yeast and sugar)

# Foods to Avoid

- Processed, artificial additives, dyes, GMO, MSG, hydrogenated fats
- Common allergen foods, wheat, gluten, dairy, casein, corn, soy, (maybe eggs)
- Foods high in mercury and arsenic
- Mycotoxins (corn, wheat, barley, sugar, sorghum, peanuts, rye, cottonseed oil, hard cheeses, rice\*, oats\*)
- Artificial Sweeteners
- Simple Carbohydrates & Sugar
- Histamine Release Food triggers
- Foods associated with energy dips and mood swings



# Fruits to Eat & Avoid

## Better Fruits:

- Papaya
- Plums
- Pears
- Kiwi (oxalates)
- Apples
- Cherries
- Strawberries
- Blueberries
- Blackberries

## Fruits to Avoid

- Bananas
- Raisins, Dates, Figs
- Oranges
- Grapefruit

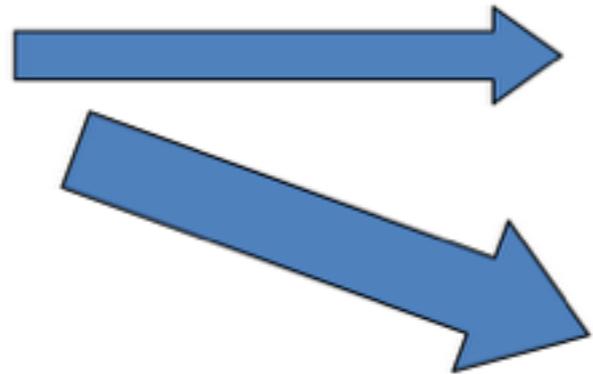




Gluten Free  
Casein Free

# Why Gluten-, Casein-, Corn-, Soy-Free Diet and More?

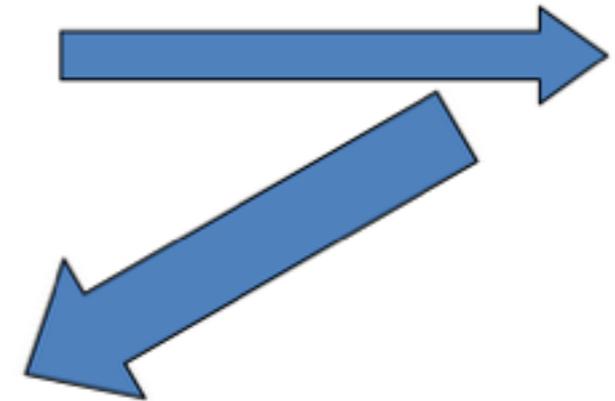
Peptides



Casomorphins



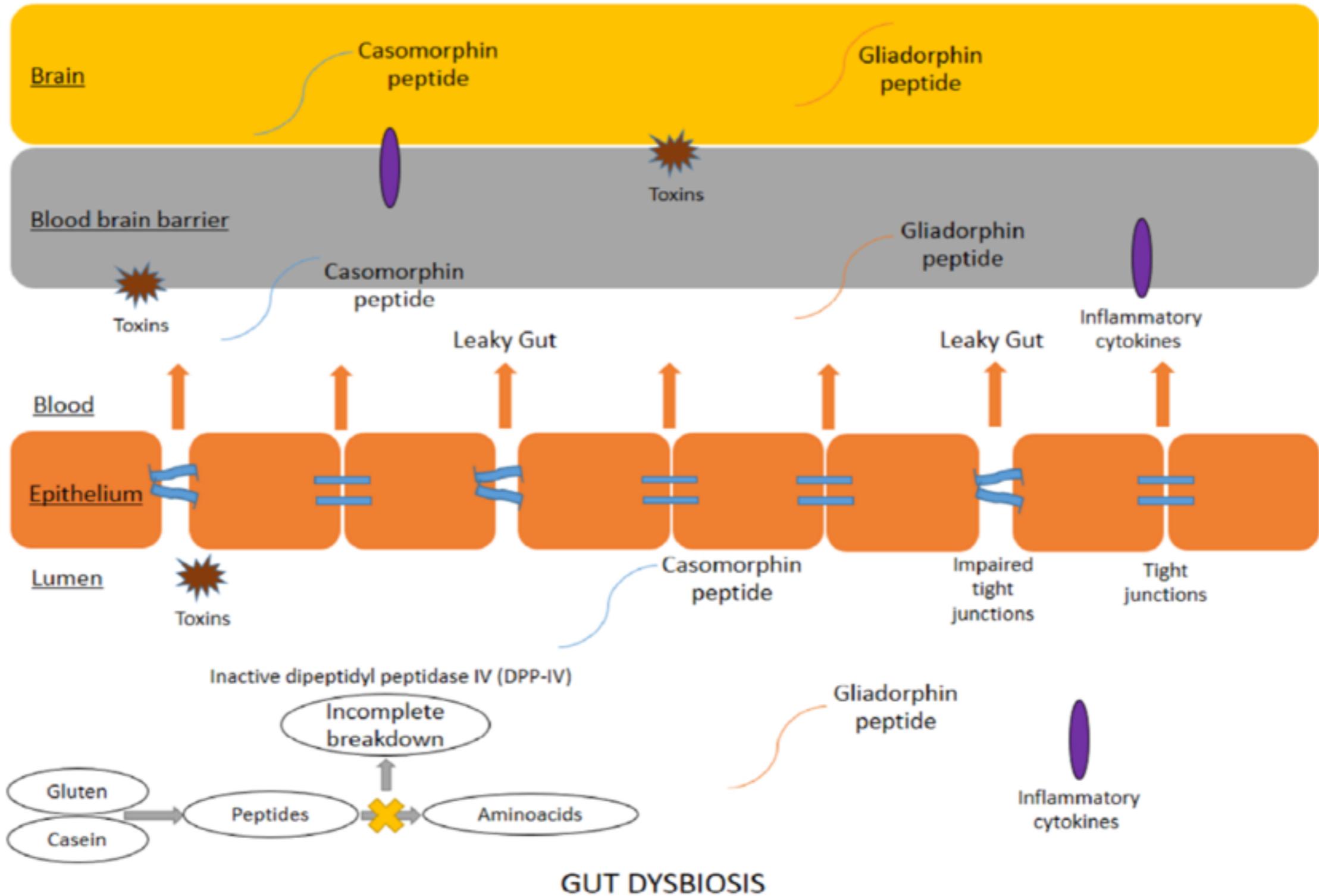
Opioid



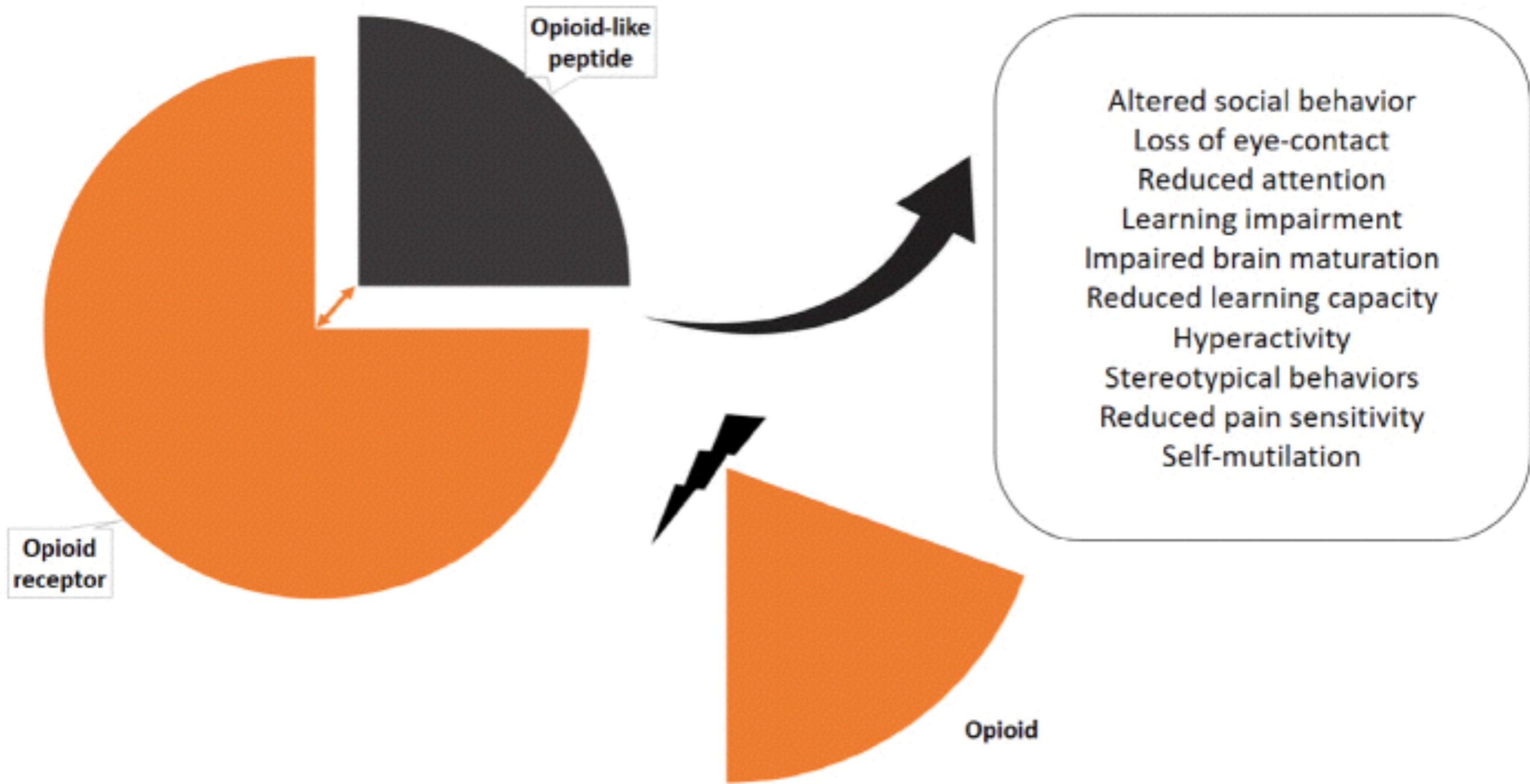
- Sensory issues
- Clouded mental function
- Insomnia
- Blocking of pain messages
- Crave opioid effect
- Systemic inflammation
- Asthma/acne/allergies

# What are these NeuroPeptides?

- Did you know? Neuropeptides [exorphins] such as gluteomor-phin and casomorphin-occur by hydrolysis of cereal and milk proteins. The brain has three different opioid receptors:  $\delta$ ,  $\kappa$ , and  $\mu$ . In addition, the cells of the digestive, immune, nervous, and endocrine systems also contain opioid receptors.
- The  $\beta$ -casomorphin-7 ( $\beta$ -CM7) released from beta-casein in cow milk is an exogenous opioid [49, 50]. It is known as the  $\mu$ -opioid receptor [MOR] agonist and can interact with the morphine serotonin system. In addition, gluten-derived opioid peptides (exorphins such as A4, A5, B4, and B537) interact with the  $\delta$ -opioid receptor in the brain and produce similar effects. Other dietary proteins may include amino acid sequences that exhibit antagonist activity on these opioid receptors.
- In children with ASD, it is reported that incompletely digested peptides cross the intestinal mucosa of the permeable intestines, frequently observed due to the formation of abnormal pores resulting from immunological factors or lesions. These peptides cross the BBB by entering the bloodstream, and they then reach the central nervous system and have negative effects on attention, brain maturation, social communication, and learning (Figure 1). When the peptide level increases, brain functions are affected. Their high levels play a part in the occurrence of symptoms such as loss of eye contact, learning impairment, hyperactivity, stereotypic movements, and self-mutilation.



**Figure 1.** Gut dysbiosis and impaired blood-brain barrier in ASD

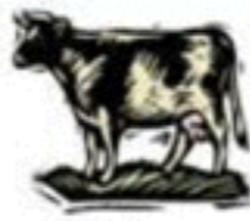


**a**

Human breast milk

 $\beta$ -CaseinHuman  $\beta$ -Casomorphin -7

Tyr-Pro-Phe-Val-Glu-Pro-Ile



Bovine milk

 $\beta$ -Casein ( 30 % of milk protein)Bovine  $\beta$ -Casomorphin -7  
(0.4 g/L milk)

Tyr-Pro-Phe-Pro-Gly-Pro-Ile



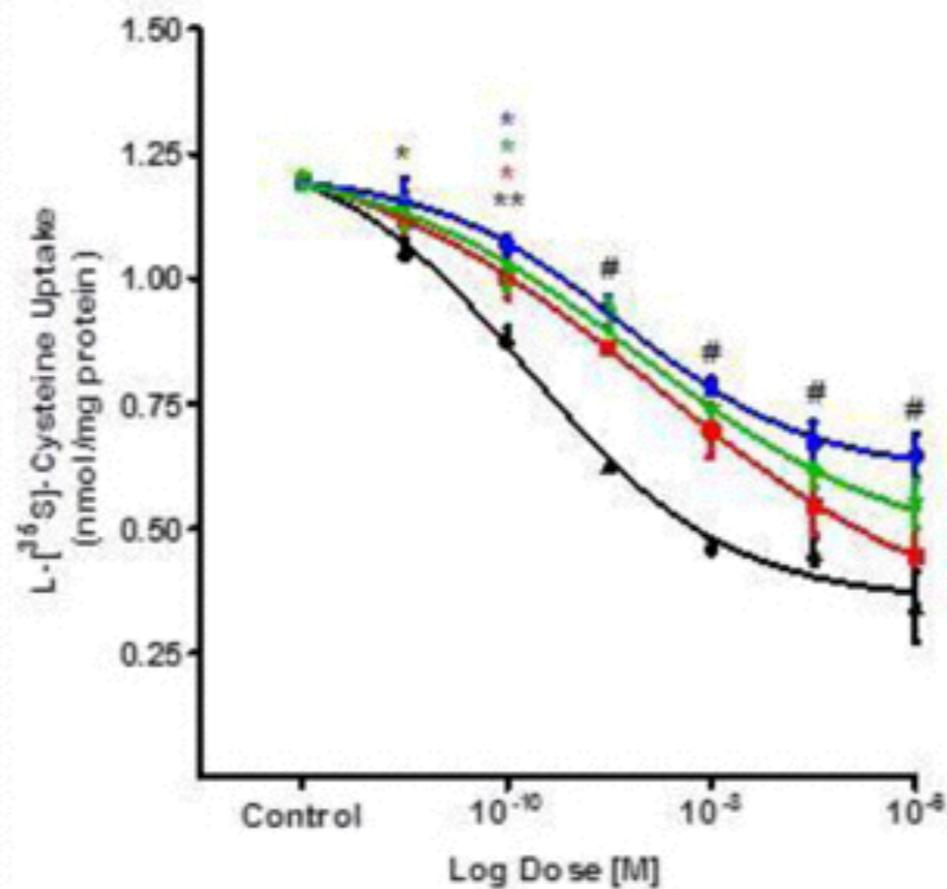
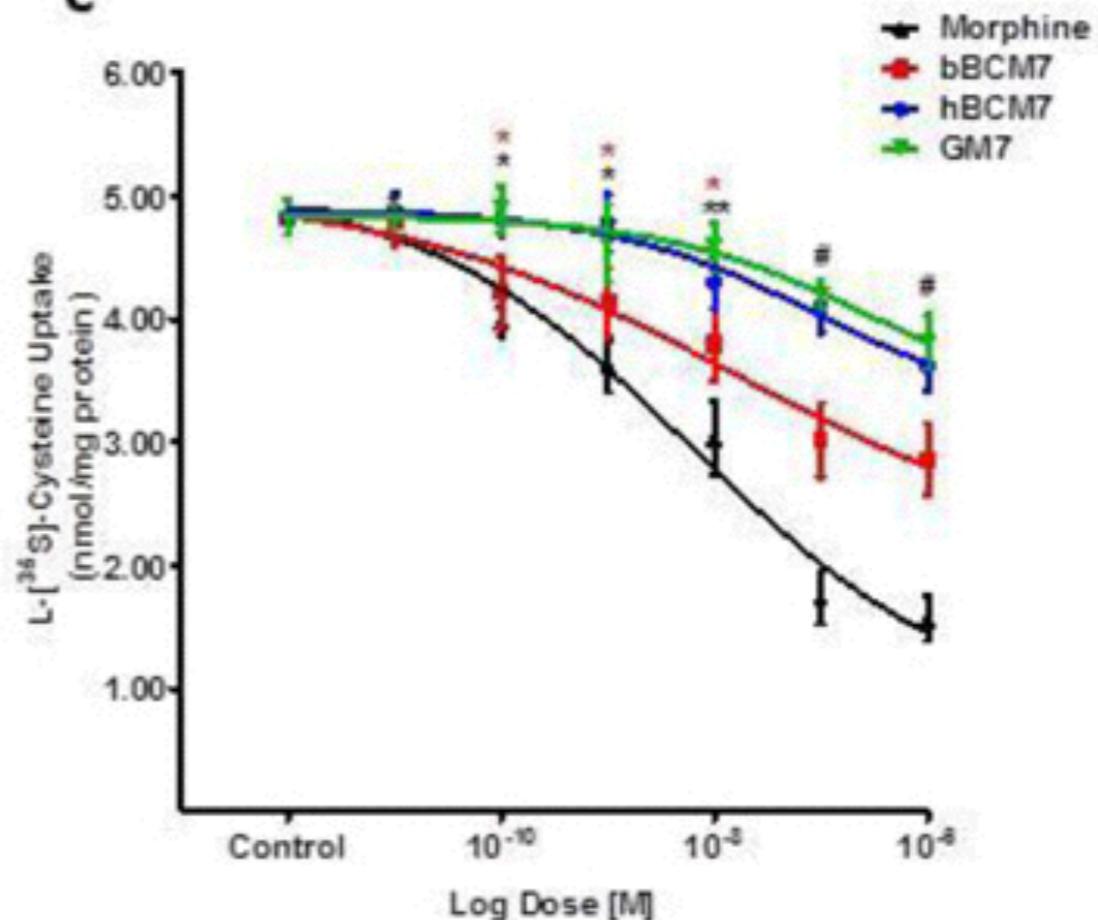
Wheat/Barley

Gluten

Gliadins

 $\alpha$ - gliadin-7

Tyr-Pro-Gln-Pro-Gln-Pro-Phe

**b****c**



# Gluten-Free Meal Plan

	<b>Breakfast</b>	<b>Lunch</b>	<b>Dinner</b>	<b>Snacks</b>
<b>Sunday</b>	Fried Eggs Sauteed Veggies & Sweet Potato Hash	Chicken Pate on Rice Crackers with Apple Slices	Roasted Chicken with Root Veggies & Steamed Broccoli	Homemade 'Energy' Bars
<b>Monday</b>	Bacon, Egg & Cheese Biscuits, Blueberries	Coconut Berry Smoothie	Grass-fed Beef Chili & Salad	Bananas & Sunflower Seeds
<b>Tuesday</b>	Cranberry Muffins & Turkey Sausage Links	Greek Salad with Eggs & Anchovies	Asian Crab Cakes, Sesame Slaw & Sweet Potato Wedges	Coconut Berry Popsicles
<b>Wed.</b>	Bacon, Egg & Cheese Biscuits, Blueberries	Leftover Crab Cakes, Slaw & Sweet Potato Wedges	Poached Sole in Lemon Butter, Veggies & Broth Rice	Apples, Handful Walnuts
<b>Thursday</b>	Cranberry Muffins & Turkey Sausage Links	Chicken Pate on Rice Crackers with Apple Slices	Chili Mac & Salad	Carrot Sticks, Ranch Dip
<b>Friday</b>	Scrambled Eggs & Potato Hash, Fruit	Tuna Nicoise Salad	Chicken Wings, Carrot Sticks, Ranch Dip & Kale Chips	Roasted Chickpeas
<b>Saturday</b>	Gluten-Free Carrot Coffeecake & Turkey Sausage	Various Leftovers	Dinner Out in Town - No Kids	Mini Smoothies

# Gluten-Free

Allowed Food	Avoid unless labeled Gluten Free	Avoid Food
Beans, seeds, nuts in their natural, unprocessed form	Beer	Barley (malt, malt flavoring and malt vinegar)
Fresh eggs	Breads, bread crumbs	Rye
Fresh meats, fish and poultry	Cakes, pies, cookies, crackers	Triticale (a cross between wheat and rye)
Fruits and vegetables	Candies	Wheat, bulgur
Most dairy products	Cereals	Seitan
Teff (tef)	Salad dressings, sauces including soy sauce	Durum flour
Amaranth	Croutons	Farina flour
Buckwheat	French fries	Graham flour
Corn (maize)	Gravies	Kamut
Millet	Imitation meat or seafood	Semolina
Quinoa	Matzo	Spelt
Rice	Pastas	Couscous
Sorghum	Processed luncheon meats	Triticale

## SOURCES OF GLUTEN TO AVOID

- Wheat
- Rye
- Barley
- Spelt
- Kamut
- Triticale
- Oats (*commercial*)
- Semolina
- Hydrolysed Vegetable Proteins
- MSG
- Dextrin
- Malt
- Citric acid
- Artificial flavors & coloring \*
- "Spices" \*
- Soy sauce (*unless wheat-free*)\*
- Potato chips/fries \*
- Sauces and gravies \*
- Bologna and hot dogs \*

\* *unless specified  
gluten-free*



## SOURCES OF CASEIN TO AVOID

- All animal milk products  
(*cow, goat, sheep*)
- Cheese
- Yogurt
- Butter
- Buttermilk
- Ice cream
- Kefir
- Cream
- Sour cream
- Whey
- Galactose
- Casein, Caseinate
- Lactose in seasoning
- Lactalbumin as natural flavor
- Lactic acid
- Sherbet
- Canned tuna
- Cool Whip
- Artificial butter flavor
- Milk chocolate
- Wax on some fruits and vegetables
- Seasoned potato chips
- Hot dogs and bologna (*may contain*)



# Beyond the Gluten-free, Casein-Free Diet

- Amines
- Glutamates
- Salicylates
- Phenols
- Oxalates
- Lectins
- Simple Carbohydrates
- Sugar
- Artificial Sweeteners

# More To Food Than We Think

- Phenol: Many **phenolic** compounds were discovered and used long before chemists were able to determine their structures. Therefore, trivial names (i.e., vanillin, salicylic acid, pyrocatechol, resorcinol, cresol, hydroquinone, and eugenol) are often used for the most common **phenolic** compounds. High **phenol foods** include tomatoes, apples, peanuts, bananas, oranges, cocoa, red grapes, colored fruits (e.g., cranberries), and milk. These compounds may also be a contaminant in **packaged foods**, as these compounds are used in can liners and foil wraps.
- Salicylates: The term phenol refers to a large group of chemical compounds found in plants. Salicylates are a specific type of phenol.

# Physical and Behavioral Symptoms

Symptoms of a phenol/salicylate sensitivity vary and mimic other conditions, making it difficult to diagnose. A person with a phenol/salicylate sensitivity may experience some of the following adverse side effects:

- **Physical:**

- Headaches
- Hives, eczema, or changes in skin color
  - Specifically, red ears and/or cheeks
- Allergy-like or respiratory issues:
  - Runny and/or stuffy nose
  - Sinus infection
  - Nasal and sinus polyps
  - Asthma
- Gastrointestinal issues:
  - Abdominal pain
  - Colitis
  - Diarrhea
  - Inflammation

- **Behavior:**

- Hyperactivity
- Mood swings, irritability, or aggression
- Stimming
- Laughing at inappropriate times
- Night waking

# Phenol Action Plan

- Eliminate foods with artificial preservatives, dyes, and additives.
  - Specifically, foods that contain natural or artificial flavorings, preservatives (BHA, BHT, and TBHQ), and dyes (red, orange, and green are the worst offenders).
  - You can see evidence of this in studies conducted by Dr. Ben Feingold, Dr. Stephen Lockey, and others, which demonstrate that **food dyes and food additives were responsible for hyperactivity in many of the children they had seen in their practices.**
- Restrict vegetables, fruits, spices, legumes, and nuts that contain the highest levels of phenols.
- Eliminate foods that trigger your child's symptoms (i.e., foods found, via elimination diet, to cause physical or behavioral symptoms).
- Reduce or eliminate exposure to non-food sources of phenols (Ibuprofen, Aspirin, mint-flavored toothpaste, etc.).
- Support the sulfurtransferase (PST) pathway with supplementation and by treating underlying medical conditions.

# More To Food Than We Think

- **Oxalates:** Oxalate is a very simple sort of molecule. It links up with calcium and crystallizes under some conditions, including when it encounters damaged tissues. The crystals formed this way can be quite irritating and painful to tissues where they cause or increase inflammation. These crystals can be especially painful if they lodge themselves in places where they get in the way of the movement of other things through tight places. High oxalates have also been linked with autism. Symptoms of high oxalates include pain, burning, fatigue, muscle aches, foggy brain, frequent urination and kidney stones. The thyroid will also suffer as oxalates can bind to T3 and disturb thyroid function.
- **Amines:** Amines are naturally occurring chemicals found in many foods. They result from the breakdown of proteins or through the fermentation process, and are responsible for giving the food its flavor. The more intense the flavor, the higher the amine content, so the longer, say, a fruit ripens or a meat cures the more amines it will contain. When you eat a food high in amines, the histidine it contains is metabolized by enzymes and bacteria to amines which are quickly absorbed in the gut and, in people who are sensitive, an allergy-type of response occurs. The end result is widening of blood vessels, tissue inflammation and swelling just as our own natural histamine creates. **Tyramine is a type of amine, just as histamine is a type of amine.**
- **Glutamate:** Glutamate is found naturally in most foods, and is a key component of protein building. It enhances the flavour of food. Foods that are rich in natural glutamate include tomatoes, sweet corn, leeks, cheeses, mushrooms and broccoli. Glutamate may also be added to stock cubes, sauces (e.g. soy sauce), meat extracts and yeast extracts. A type of glutamate called monosodium glutamate (MSG) is also used to enhance the flavour of some soups, sauces and snack foods. The more 'tasty' the food, the more likely it contains higher levels of glutamate.

# More To Food Than We Think

- **Lectins:** Lectins are carbohydrate-binding proteins that are highly specific for sugar groups of other molecules, **Lectins** are a family of proteins found in almost all foods, especially legumes and grains. Some people claim that **lectins** cause increased gut permeability and drive autoimmune diseases. While it's true that certain **lectins** are toxic and cause harm when consumed in excess, they're easy to get rid of through cooking.
- Lectins are present in most plant foods but especially high in:
  - legumes, such as beans, lentils, peas, soybeans, and peanuts
  - nightshade vegetables, such as tomatoes and eggplant
  - dairy products, including milk
  - grains, such as barley, quinoa, and rice

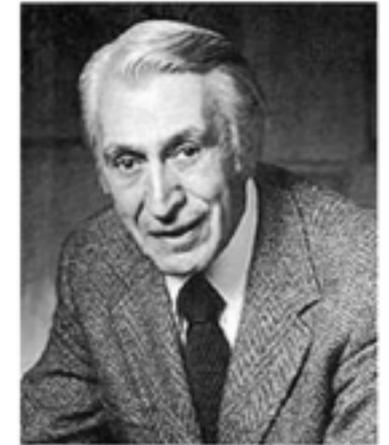
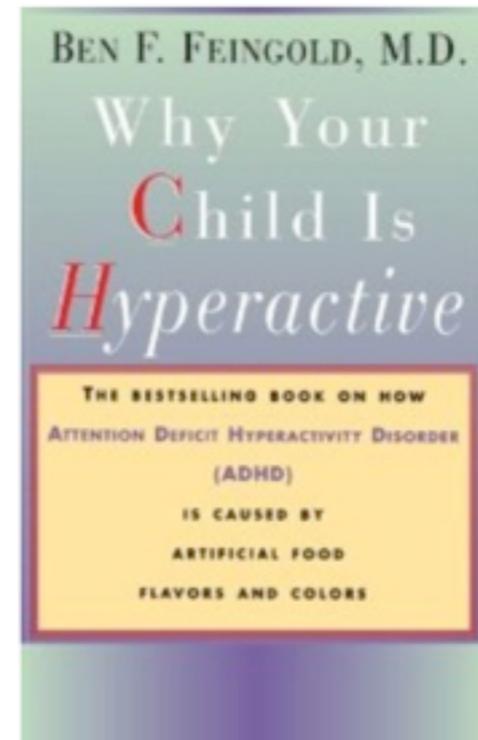
The lectin-free diet is restrictive and eliminates many nutrient-dense foods — even those generally considered to be healthy. Cooking many foods with harmful lectins, such as kidney beans, greatly reduces their lectin content, making them safe to eat. However, cooking other foods, such as peanuts, may not eliminate their lectin content.

# Do Food Additives Affect Behavior (ADHD)?

Feingold (1975):

- Allergy hypothesis
- Elimination of artificial flavors, preservatives, artificial sweeteners, natural salicylates

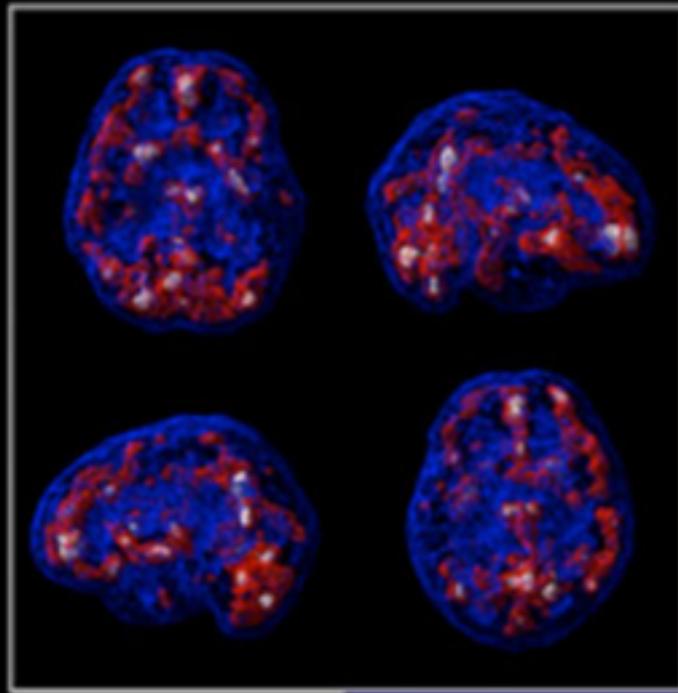
Oligoantigenic Diet



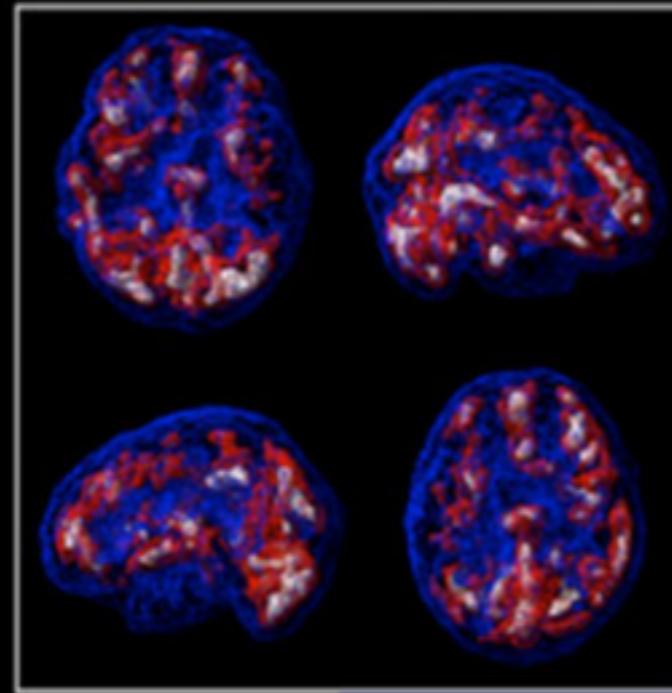
You can find Red Dye 40 in a wide range of foods and beverages, including:

- Candy
- Condiments
- Snack foods
- Baked goods
- Beverages
- Salad dressings
- Dairy products
- Frozen desserts
- Breakfast cereals
- Fruit bars
- Sauces

## BRAIN SPECT ACTIVE VIEW Before and After Red Dye #40 Exposure



**Before**  
*Active Brain*



**After Exposure**  
*Marked Overall Increased Activity*

As can be seen on this teen's SPECT scan, his brain showed remarkable overall increased activity with exposure to Red Dye 40. In the images, blue equals average activity, red equals the top 15% of brain activity, and white equals the top 8% of brain activity.

After removing Red Dye 40 from his diet, Robert's behavior improved dramatically. His mother strongly believes that their experience is not a unique one and that Red Dye 40 should be completely banned from our food supply.

# 10 Terrible Truths About

## One of the Most Commonly Used Food Dyes in the US

### RED DYE #40

1. Red Dye #40 is one of the most commonly used food dyes used in the U.S.

2. An estimated 6 million pounds of Red Dye #40 are dumped into foods each year.

3. Red Dye #40 is a synthetic, petroleum-based substance.

4. Red Dye #40 can be found in candy, condiments, snack foods, breakfast cereals, baked goods, sodas, juice drinks, gelatins, dairy products, and salad dressings.

5. Red Dye #40 is used in personal care products, cosmetics, and even in prescription medications.

6. Multiple studies show that some children with ADD/ADHD are adversely affected by artificial food dyes, including Red Dye #40.

7. Scientific research reports that artificial coloring, such as Red Dye #40, can make some non-ADD/ADHD kids hyperactive.

8. Many parents blame increased hyperactivity on a "sugar rush" after children consume a snack, but it's often linked to Red Dye #40.

9. Symptoms reported after ingesting Red Dye #40 include upset stomach, migraines, jitteriness, nervousness, an inability to concentrate, and aggressive behavior.

10. Brain imaging studies at Amen Clinics show that Red Dye #40 can dramatically alter brain function and increase activity throughout the brain.



# What is Specific Carbohydrate Diet (SCD)?

Research indicates starches and certain sugars feed microbes, such as bacteria, yeast and fungi. These harmful microbes in the intestinal tract can cause GI problems, autism and other illnesses. SCD eliminates these microbes by starving them while continuing to nourish the body. As the body heals the gut/brain connection is repaired.

## *How Is It Different From GF/CF?*

You can remain GF/CF on SCD. SCD is gluten free, but does not allow starch and sugar. SCD includes dairy that is virtually lactose free and contains denatured casein. However, dairy foods are not mandatory on SCD. Pam Ferro, of The Gottschall Autism Center and Hopewell Clinic, says the first three months for ASD children should be dairy free. The majority of ASD children begin SCD without dairy and many successfully integrate dairy back into their diet after some healing occurs.

**TABLE 1****A Sampling of Legal and Illegal Foods of the Specific Carbohydrate Diet<sup>8</sup>**

<b>CATEGORY</b>	<b>LEGAL</b>	<b>ILLEGAL</b>
Proteins	Fresh or frozen: <ul style="list-style-type: none"><li>• beef</li><li>• lamb</li><li>• pork</li><li>• poultry</li><li>• fish and shellfish</li><li>• eggs</li><li>• natural and aged cheeses</li></ul> Canned fish in oil or water	Processed meats: <ul style="list-style-type: none"><li>• hot dogs</li><li>• bologna</li><li>• ham cured with sugar</li><li>• breaded fish</li><li>• canned fish with sauces</li><li>• processed cheese</li><li>• smoked meats</li></ul> All canned meats
Beans/legumes	Specially prepared with only allowed ingredients:  white beans, navy beans, lentils, split peas, lima beans, kidney beans, black beans, peanuts in the shell	Soybeans, chickpeas, bean sprouts, mung beans, fava beans, shelled peanuts
Nuts/seeds	Almonds, Brazil nuts, cashews, boiled chestnuts, hazelnuts, pecans, walnuts	Nuts roasted with starches
Oils	Olive oil is highly recommended	None restricted

# PRODUCE

## SCD Summary of Foods

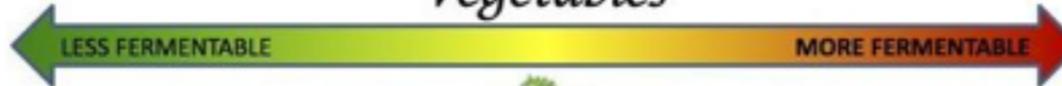
The Specific Carbohydrate Diet (SCD) is a nutritionally complete grain free diet, low in sugar and lactose. This list is a general outline of what foods are included and excluded on the SCD.

\*Please refer to the [SCD Detailed Summary](#) handout for more detailed information\*

You CAN Eat:		Avoid these foods:			
<ul style="list-style-type: none"> <li>Fruits (fresh/frozen, organic preferred)</li> <li>Vegetables (fresh, frozen, fermented; non-starchy)</li> <li>Meats and poultry (grass-fed/organic preferred; bone broth)</li> <li>Fish and seafood (wild-caught preferred)</li> <li>Eggs (organic, cage-free preferred)</li> <li>Dairy (yogurt; fermented 24 hours; organic butter, ghee, hard cheese; aged over 30 days)</li> <li>Beans and legumes (soaked overnight)</li> <li>Fats and oils (nuts, nut butter, avocado oil, coconut oil, canola)</li> <li>Honey</li> <li>Condiments (spices, turmeric, mustard, vinegar)</li> <li>Drinks (tea, coffee, water, club soda, juice- no added sugar, almond/coconut milk, distilled spirits, wine)</li> </ul> <p>Modified SCD- You CAN Add:</p> <ul style="list-style-type: none"> <li>Organic rice</li> <li>Oats (organic preferred)</li> <li>Sweet potatoes</li> <li>100% cocoa (unsweetened, not Dutch processed) or 100% cacao powder, nibs, or butter (no sugar added)</li> </ul> <p>Maple syrup (Grade A)</p>		<ul style="list-style-type: none"> <li>All grains (wheat, corn, barley, oats, rye, rice, buckwheat, soy, spelt, amaranth, quinoa, tapioca)</li> <li>Sugars (lactose, sucrose, molasses, stevia, etc.)</li> <li>Dairy (milk, ice cream, soft cheese)</li> <li>Starchy vegetables (potatoes, sweet potatoes, other root vegetables)</li> <li>Starchy beans (soybeans, garbanzo beans, fava)</li> <li>Processed meats (hot dogs, deli meat*)</li> <li>Sweetened drinks (juice with added sugar, sodas, beer)</li> <li>Canned foods (veggies and fruits with added sugar or syrup)</li> <li>Seaweed products (algae, agar, carrageenan)</li> <li>Many condiments (ketchup*, anti-caking agents)</li> <li>Sweets (candy, chocolate, cookies, anything with high fructose)</li> </ul> <p><i>*Exceptions allowed – some new brands are allowed, see preferred brands list</i></p>			
Key Words to Look for:		Words to Avoid:			
<ul style="list-style-type: none"> <li>Grass-fed</li> <li>Organic</li> <li>Wild-caught</li> <li>Pasture raised</li> <li>Unsweetened</li> <li>Raw</li> </ul>		<ul style="list-style-type: none"> <li>Cage-free</li> <li>GMO-free</li> <li>Hormone-free</li> <li>All starch</li> <li>All syrups</li> <li>Carrageenan</li> <li>Xanthan/guar gum</li> <li>Hydrogenated oils</li> <li>Monosodium glutamate (MSG)</li> <li>Corn - dextrose, dextrin</li> <li>Sugar - maltose, galactose, sucrose, turbinado</li> <li>Nitrate</li> </ul>			
Swap This for That					
Pasta:	Rice:	Milk:	Sugar/Candy:	Flours:	Milk Ice Cream:
Spaghetti squash or zucchini spiral	Cauliflower or Broccoli rice	Almond or coconut milk	Honey/honey candy/ripe and dry fruit	Nut or coconut flours/meal	Frozen fruit "ice cream"

SIBO Specific Diet: Food Guide

# Vegetables



SCD "LEGAL" LOW FODMAP	SCD "LEGAL" MODERATE FODMAP	SCD "LEGAL" HIGH FODMAP	SCD "ILLEGAL"
Artichoke Hearts* 1/8 c	Asparagus 1 spear	Asparagus 4 spears	Bean Sprouts
Arugula	Artichoke Hearts* ¼ c	Artichoke	Corn
Bamboo Shoots	Butternut Squash	Avocado	Okra
Beet 2 slices	½ c/60g	Beet 4 slices	Potato: white/all colors
Bok Choy 1 c/85g	Cabbage >1 c/98g	Bok Choy 1½ c/127g	Potato: sweet
Broccoli ½ c/1.6oz	Cabbage: Savoy ¾ c	Broccoli 1 c	Starch powder: all
Brussels Sprouts 2 ea	Leek ½ ea/42g	Brussels Sprouts 6 ea/114g	arrowroot, corn, potato, rice, tapioca
Cabbage 1 c/98g	Parsnip	Cabbage: Savoy 1 c	Seaweeds
Cabbage: Savoy ½ c	Pepper: Chili 40g	Cauliflower	Turnip
Carrot	Peas, green 1/3c	Celery	Taro
Celery Root/Celeriac	Spinach >15 leaves/150g	Fennel bulb >1 c, leaves >3c	Water Chestnuts
Chives	Tomato: soup/juice	Garlic	Yam
Cucumber	Tomato: Sun-dried 2 T/15g	Jerusalem artichoke	Yucca
Eggplant		Leek 1 ea/84g	Canned vegetables
Endive		Mushrooms	
Fennel bulb ¼c, leaves 1c		Onions	
Green Beans 10ea/2.5oz		Peas, green ½ c/72g	
Greens: lettuce, collard, chard, kale, spinach		Snow Peas 10 pods	
Olives		Scallions: white part	
Peas, green ¼ c		Shallot	
Peppers: Bell/ Sweet		Sugar Snap Peas	
Peppers: Chili 11cm/28g		Zucchini >¼ cup	
Radicchio 12 leaves			
Radish			
Rutabaga			
Scallion: green part			
Snow Peas: 5 pods			
Squash: Butternut ¼ c			
Kobocho, Sunburst, Yellow, Zucchini ¼ c			
Tomato			

# What do you eat on SCD diet?

Check the resources section of Week 6, included is the PDF of the allowed foods and not allowed foods of the SCD plan.

# What is FODMAP diet?

FODMAP stands for fermentable oligosaccharides, disaccharides, monosaccharides and polyols, which are short-chain carbohydrates (sugars) that the small intestine absorbs poorly. Some people experience digestive distress after eating them.

Symptoms include:

- Cramping

- Diarrhea

- Constipation

- Stomach bloating

- Gas and flatulence

# How does the low FODMAP diet work?

How does the low FODMAP diet work?

Low FODMAP is a three-step elimination diet:

- 1 First, you stop eating certain foods (high FODMAP foods).
- 2 Next, you slowly reintroduce them to see which ones are troublesome.
- 3 Once you identify the foods that cause symptoms, you can avoid or limit them while enjoying everything else worry-free.

# What do you eat on FODMAP diet?

Foods that trigger symptoms vary from person to person.

To ease IBS and SIBO symptoms, it's essential to avoid high FODMAP foods that aggravate the gut, including:

- Dairy-based milk, yogurt and ice cream

- Wheat-based products such as cereal, bread and crackers

- Beans and lentils

- Some vegetables, such as artichokes, asparagus, onions and garlic

- Some fruits, such as apples, cherries, pears and peaches

Instead, base your meals around low FODMAP foods such as:

- Eggs and meat

- Almond milk

- Grains like rice, quinoa and oats

- Vegetables like eggplant, potatoes, cucumbers and zucchini

- Fruits such as grapes, oranges, strawberries, blueberries and pineapple

# Low FODMAP Diet

FOOD	EAT	AVOID
<b>Vegetables</b>	 lettuce, carrot, cucumber & more	 garlic, beans, onion & more
<b>Fruits</b>	 strawberries, pineapple, grapes & more	 blackberries, watermelon, peaches & more
<b>Proteins</b>	 chicken, eggs, tofu & more	 sausages, battered fish, breaded meats & more
<b>Fats</b>	 oils, butter, peanuts & more	 almonds, avocado, pistachios & more
<b>Starches, cereals &amp; grains</b>	 potatoes, tortilla chips, popcorn & more	 beans, gluten-based bread, muffins & more

# What do you eat on FODMAP diet?

**Low FODMAP foods**, which people can eat more liberally than medium and high FODMAP foods include:

- Vegetables: Lettuces, carrot, chives, cucumber, fennel, eggplant, broccoli (heads or whole), zucchini, green beans, and baby spinach.
- Fruits: Strawberries, pineapple, grapes, oranges, and kiwifruit.
- Proteins: Chicken, beef, turkey, cold cuts, lamb, tofu, and eggs
- Fish: Crab, lobster, salmon, *tuna*, and shrimp.
- Fats: Oils, pumpkin seeds, butter, peanuts, macadamias, and walnuts.
- Starches, cereals, and grains: Potatoes, gluten free bread, quinoa, brown rice, tortilla chips, and *popcorn*.

**High FODMAP foods to avoid, include:**

- Vegetables: Garlic, asparagus, onions, mushrooms, beans, shallots, and scallions.
- Fruits: Blackberries, watermelon, prunes, peaches, dates, and avocados.
- Meats: Sausages, breaded meats, battered meats, and meats served with garlic or onion-based sauces and fillings.
- Fish: Breaded fish, battered fish, and fish served with garlic or onion-based sauces.
- Fats: Almonds, cashews, pistachios, and avocado
- Starches, cereals, and grains: Beans, lentils, wheat, and gluten-based bread, rye, muffins, pastries, and pasta.

# Part 2

## Understanding Glyphosate Negative Impact

A CONNECTION BETWEEN

**AUTISM**

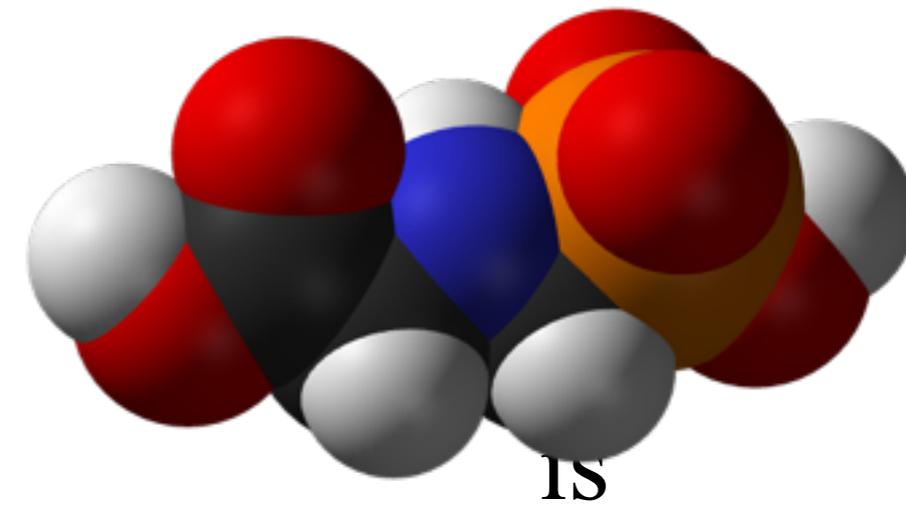
**& GLYPHOSATE**



# What's wrong with this picture?



# Is Glyphosate Toxic?



- Monsanto has argued that glyphosate is harmless to humans because our cells don't have the shikimate pathway, which it inhibits
- However, our gut bacteria DO have this pathway
  - We depend upon them to supply us with essential amino acids (among many other things)
- Other ingredients in Roundup greatly increase glyphosate's toxic effects
- Insidious effects of glyphosate accumulate over time
  - Most studies are too short to detect damage

# Paper Published in 2013

*Entropy* **2013**, *15*, 1416-1463; doi:10.3390/e15041416

OPEN ACCESS

*entropy*

ISSN 1099-4300

[www.mdpi.com/journal/entropy](http://www.mdpi.com/journal/entropy)

*Review*

## **Glyphosate's Suppression of Cytochrome P450 Enzymes and Amino Acid Biosynthesis by the Gut Microbiome: Pathways to Modern Diseases**

**Anthony Samsel<sup>1</sup> and Stephanie Seneff<sup>2,\*</sup>**

# Main Chemical Effects of Glyphosate\*

- Interferes with function of cytochrome P450 (CYP) enzymes
- Chelates important minerals (iron, cobalt, manganese, etc.)
- Interferes with synthesis of aromatic amino acids and methionine
  - Leads to shortages in critical neurotransmitters and folate
- Disrupts sulfate synthesis and sulfate transport

\**Samsel and Seneff, Entropy 2013, 15, 1416-1463*

# Glyphosate: The Central Mechanisms

- Glyphosate acts as an antibiotic to disrupt gut bacteria, leading to overgrowth of pathogens
- Disruption of liver CYP enzymes leads to impaired bile flow and low vitamin D
  - This disrupts sulfate synthesis and transport
  - Also impairs detoxification of other toxic chemicals
- Damage to red blood cells leads to anemia and toxicity due to free iron
  - Hypoxia ensues, low grade encephalopathy
- Leaky gut and leaky brain barrier lead to neuronal exposure to dangerous metals and neurotoxins

# Glyphosate Depletes Iron, Manganese and Zinc in Plants\*

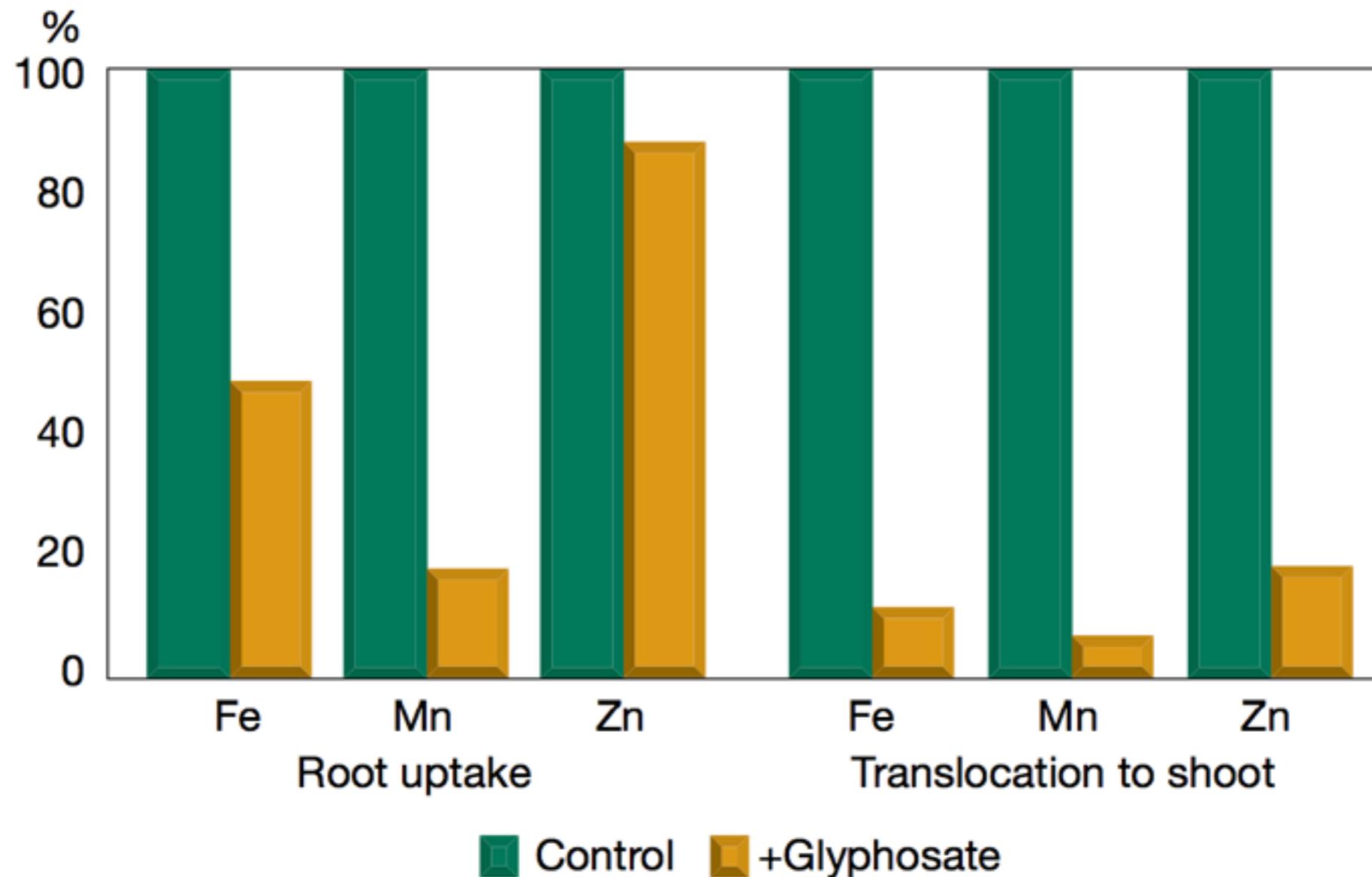
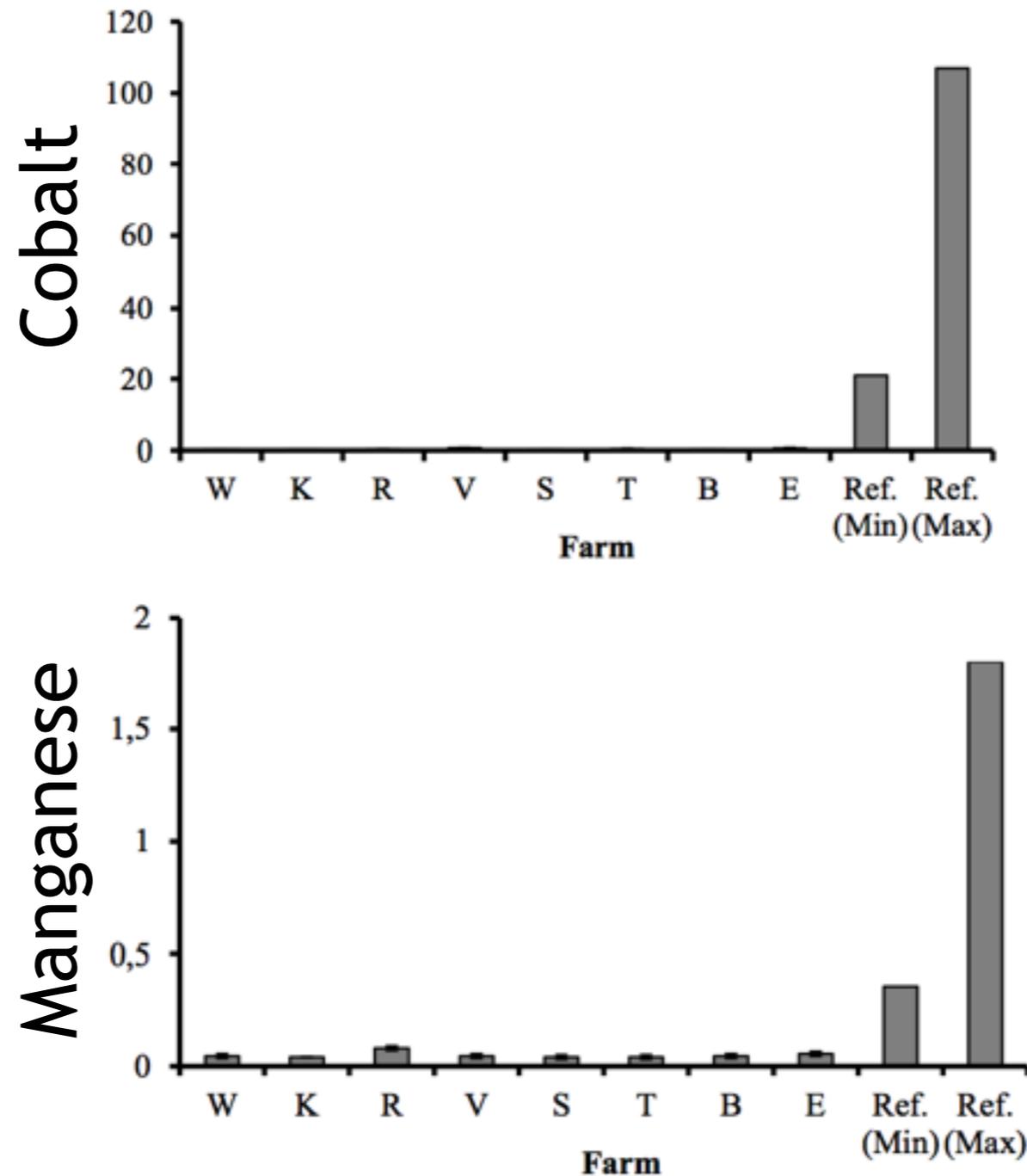


Figure 1. Effect of glyphosate\* on nutrient uptake and translocation by “non-target” plants, Eker, et al. 2006. (\* 2.5% of recommended herbicidal rate of glyphosate.)

\*D Huber, What About Glyphosate-Induced Manganese Deficiency? Fluid Journal, 20-22.

# Severe Deficiency in Serum Manganese and Cobalt in Cows\*



Eight different farms: all cows tested had glyphosate in the urine

\*M. Krüger et al., J Environ Anal Toxicol 2013, 3:5

# The Enhancing Effect of Adjuvants\*

“Adjuvants in pesticides are generally declared as inerts, and for this reason they are not tested in long-term regulatory experiments. It is thus very surprising that they amplify *up to 1000 times* the toxicity of their APs [Active Principles] in 100% of the cases where they are indicated to be present by the manufacturer.”

\*R. Mesnage et al. BioMed Research International 2014; Article ID:179691.

# Roundup Safety Claims Disputed\*

“It is commonly believed that Roundup is among the safest pesticides. ... Despite its reputation, *Roundup was by far the most toxic among the herbicides and insecticides tested.* This inconsistency between scientific fact and industrial claim may be attributed to huge economic interests, which have been found to falsify health risk assessments and *delay health policy decisions.*”

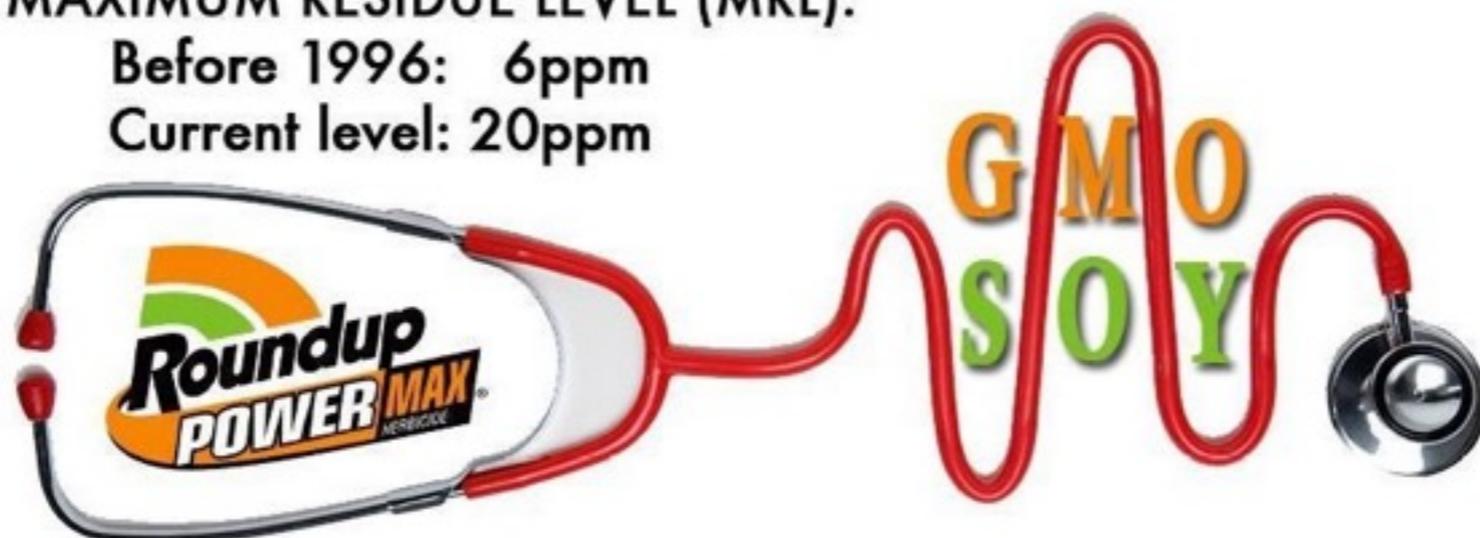
\*R. Mesnage et al., Biomed Research International, Volume 2014 (2014), [Article ID 179691](#)

**SINCE THE INTRODUCTION  
OF **GMO SOY**  
THE EPA HAS INCREASED THE ALLOWABLE  
RESIDUE OF GLYPHOSATE ON SOY BY **233%****

MAXIMUM RESIDUE LEVEL (MRL):

Before 1996: 6ppm

Current level: 20ppm



MRL values appear to have been increased, not based on new scientific evidence, but in response to actual observed increases in the content of residues in glyphosate-tolerant GM soybeans.



***Weed resistance goes up.***

***Glyphosate usage goes up. Medical bills go up?***



[www.facebook.com/gmofreeusa](http://www.facebook.com/gmofreeusa)

[www.facebook.com/gmofreeusa](http://www.facebook.com/gmofreeusa)

[www.facebook.com/gmofreecanadagroup](http://www.facebook.com/gmofreecanadagroup)

# Research Paper Published

Journal of Organic Systems, 9(2), 2014

ORIGINAL PAPER

## Genetically engineered crops, glyphosate and the deterioration of health in the United States of America

**Nancy L. Swanson<sup>1</sup>, Andre Leu<sup>2\*</sup>, Jon Abrahamson<sup>3</sup> and Bradley Wallet<sup>4</sup>**

<sup>1</sup> *Abacus Enterprises, Lummi Island, WA, USA*

<sup>2</sup> *International Federation of Organic Agricultural Movements, Bonn, Germany*

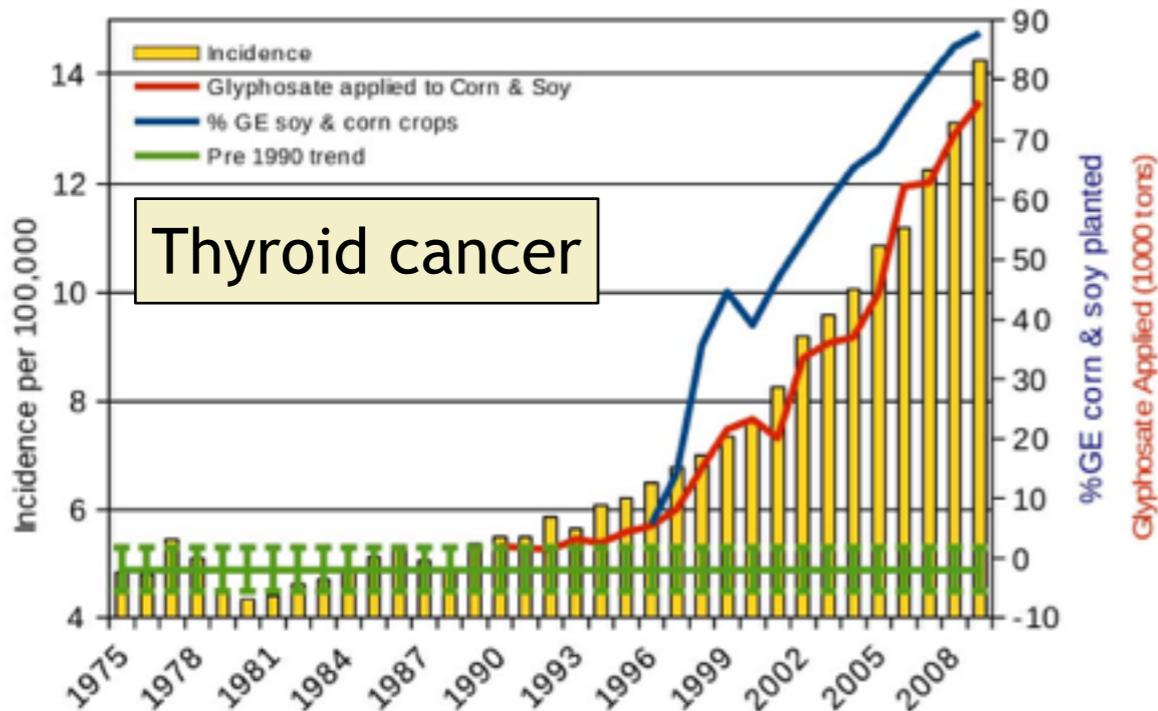
<sup>3</sup> *Abacus Enterprises, Lummi Island, WA, USA*

<sup>4</sup> *Crustal Imaging Facility, Conoco Phillips School of Geology and Geophysics, University of Oklahoma, USA*

While it was claimed that the GMO Roundup-Ready Crops (corn, soy, canola, sugar beets, cotton, tobacco and alfalfa) would lead to *less* glyphosate usage, the

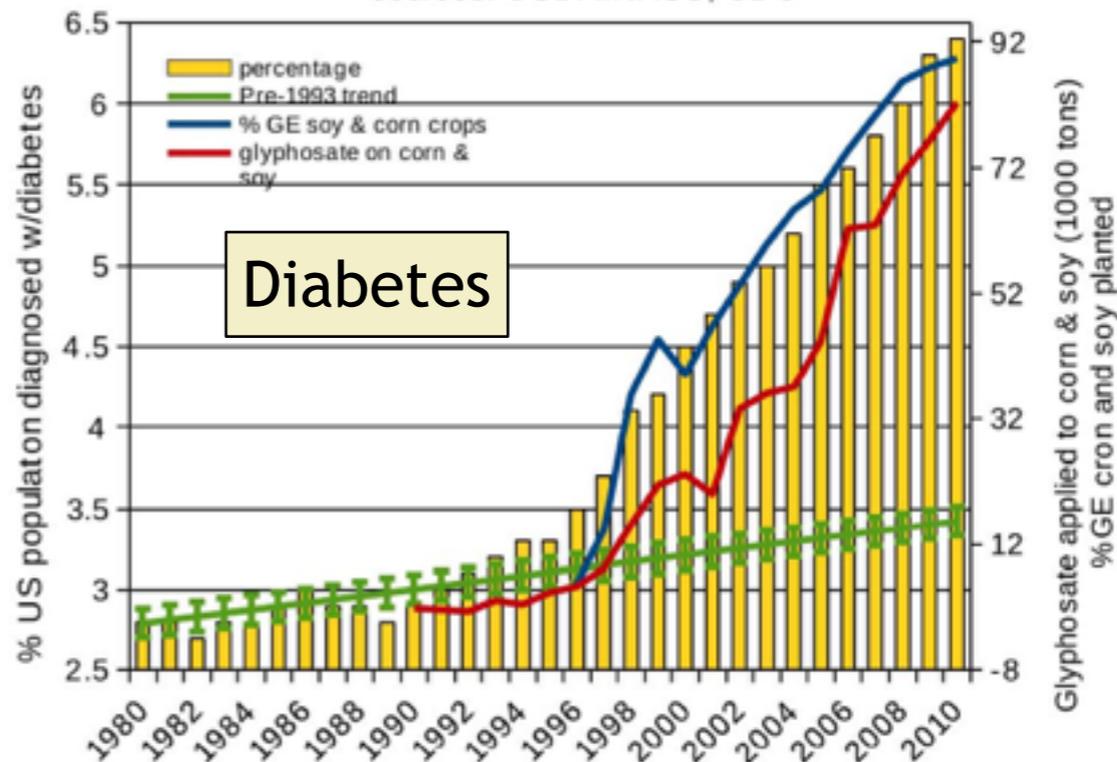
### Thyroid Cancer Incidence Rate (age adjusted)

plotted against glyphosate applied to U.S. corn & soy ( $R = 0.988$ ,  $p \leq 7.612e-09$ )  
 along with %GE corn & soy crops  $R = 0.9377$ ,  $p \leq 2.152e-05$   
 sources: USDA:NASS; SEER



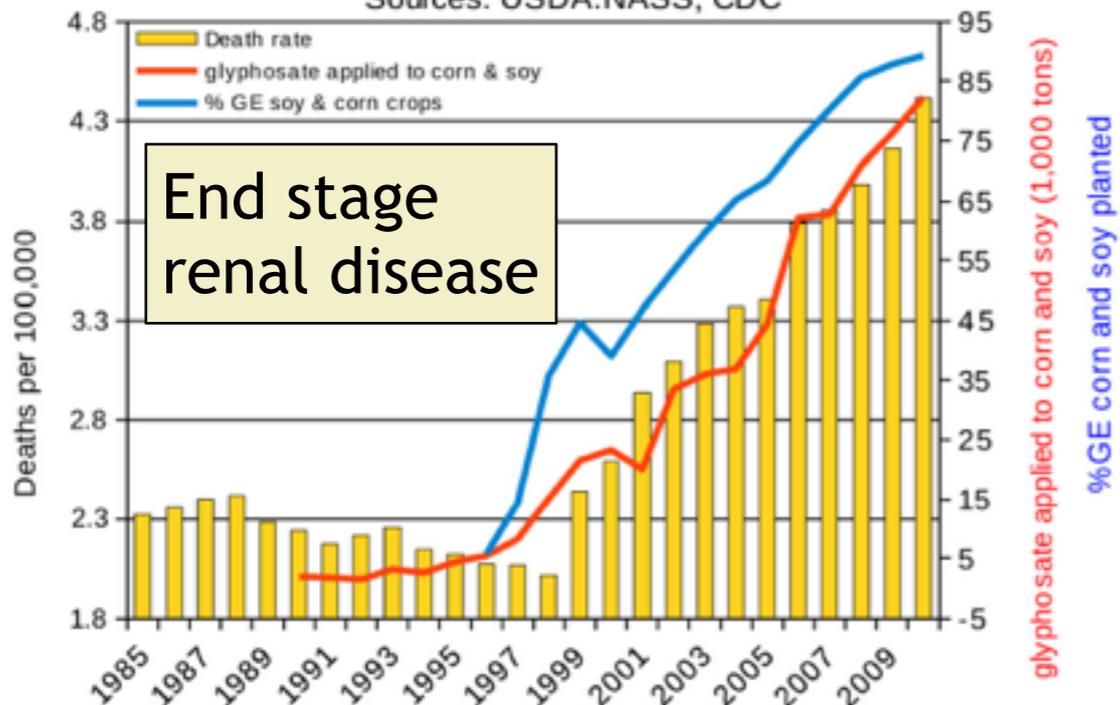
### Prevalence of Diabetes in US (age adjusted)

plotted against glyphosate applied to corn & soy ( $R = 0.971$ ,  $p \leq 9.24e-09$ )  
 along with %GE corn & soy grown in US ( $R=0.9826$ ,  $p \leq 5.169e-07$ )  
 sources: USDA:NASS; CDC



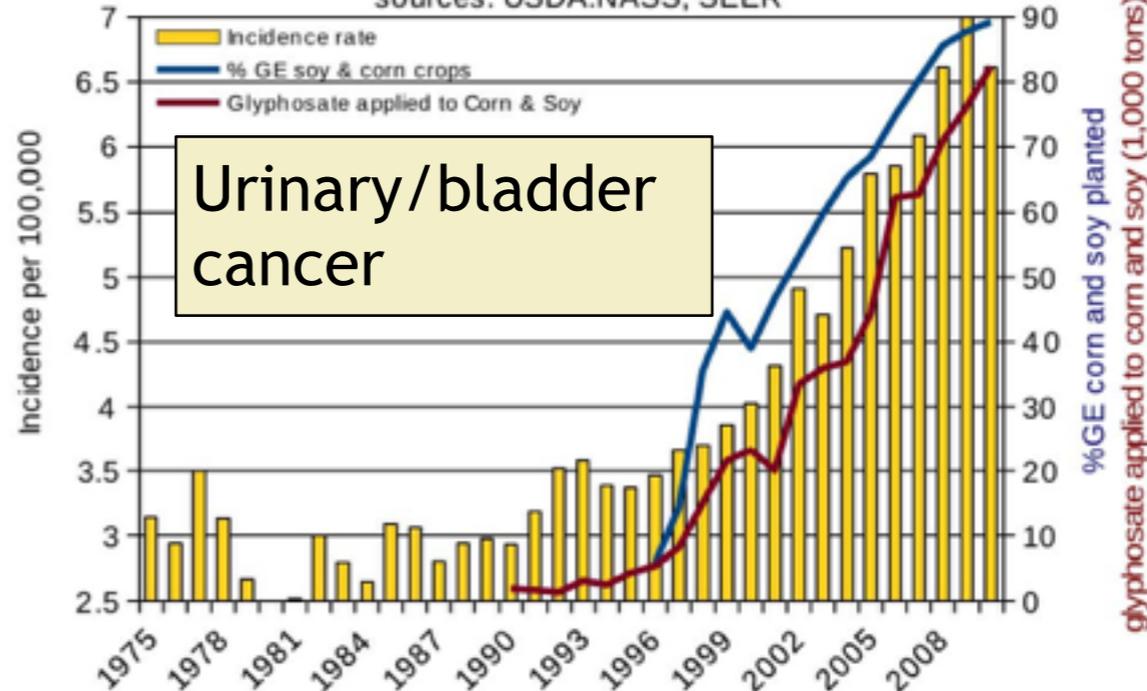
### Age Adjusted End Stage Renal Disease Deaths (ICD N18.0 & 585.6)

plotted against %GE corn & soy planted ( $R = 0.9578$ ,  $p \leq 4.165e-06$ )  
 and glyphosate applied to corn & soy ( $R = 0.9746$ ,  $p \leq 7.244e-09$ )  
 Sources: USDA:NASS; CDC



### Age Adjusted Urinary/Bladder Cancer Incidence

Plotted against % GE corn and soy ( $R = 0.9449$ ,  $p \leq 7.1e-06$ )  
 and glyphosate applied to corn and soy ( $R = 0.981$ ,  $p \leq 4.702e-09$ )  
 sources: USDA:NASS; SEER



# Enlist Duo!

- The answer to glyphosate resistance in weeds!
- Corn and soybean crops will soon be engineered to resist both glyphosate and 2,4 D
- Enlist Duo contains a mixture of both of these herbicides
- The synergistic effects can only be imagined at this time



# Gluten Intolerance or Glyphosate Intolerance?



- **Glyphosate: the key ingredient in Monsanto's RoundUp**
- **Routinely used to "dry down" wheat prior to harvest**
- **Linked to celiac disease, gluten intolerance, and irritable bowel**

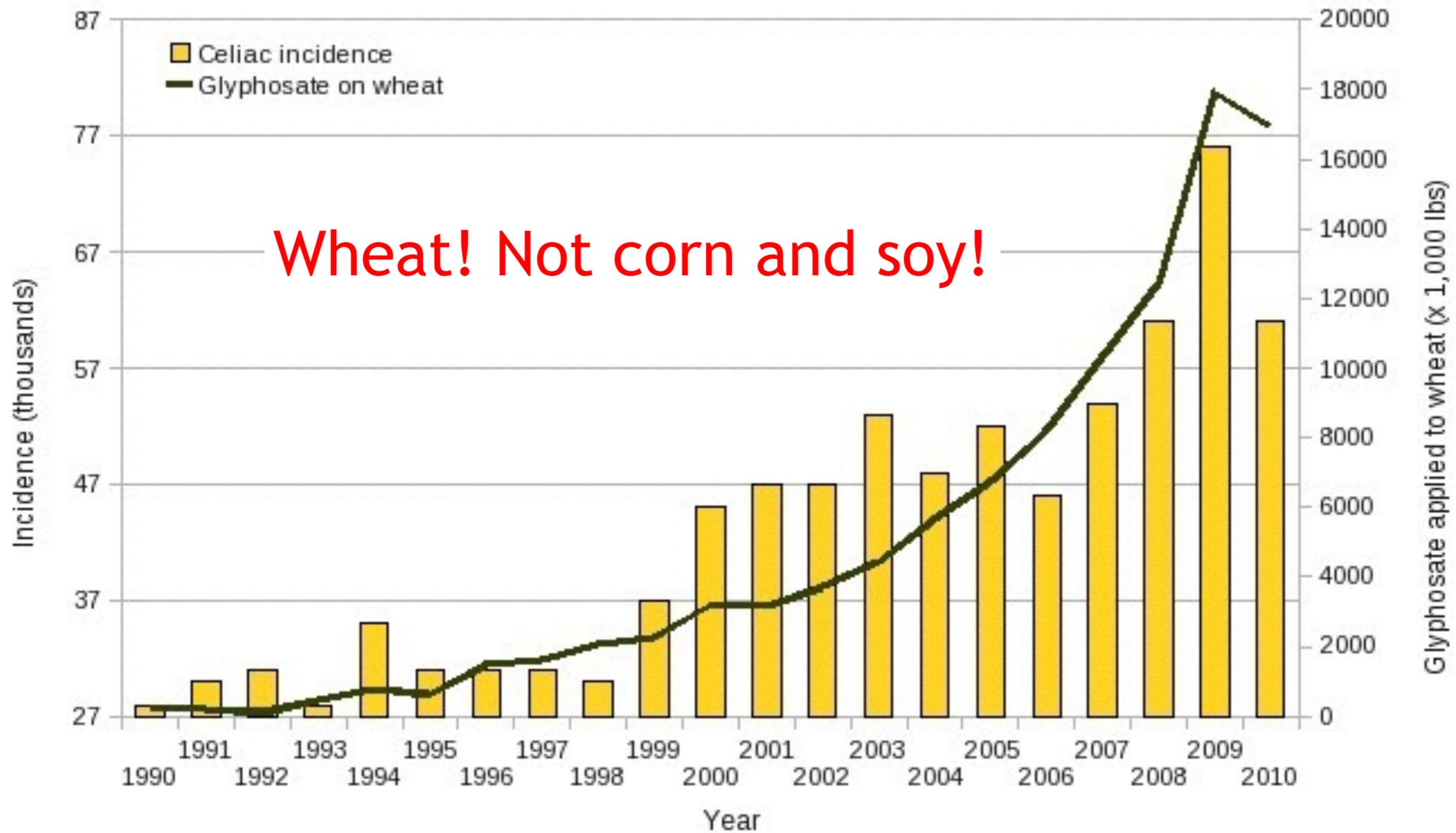


**Get the facts. Share the awareness.**

# Hospital Discharge Diagnosis (any) of Celiac Disease ICD-9 579

and glyphosate applications to wheat ( $R = 0.9759$ ,  $p \leq 1.862e-06$ )

sources: USDA:NASS; CDC



# Human Dietary Experiment on Wheat & Inflammatory Bowel Syndrome\*

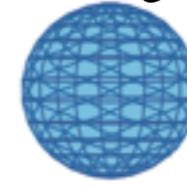
- Significant improvement in symptoms with dietary organic wheat from ancient source
  - Abdominal pain ( $P < 0.0001$ )
  - Bloating ( $P = 0.004$ )
  - Stool consistency ( $P < 0.001$ )
  - Tiredness ( $P < 0.0001$ )
- Reduced pro-inflammatory cytokines: IL-6, IL-17, interferon-gamma, VEGF



\*F. Sofi et al., Br J Nutr. 2014 Feb 13:1-8.

# Another Study\*

Nevison *Environmental Health* 2014, **13**:73  
<http://www.ehjournal.net/content/13/1/73>



ENVIRONMENTAL HEALTH

RESEARCH

Open Access

## A comparison of temporal trends in United States autism prevalence to trends in suspected environmental factors

Cynthia D Nevison

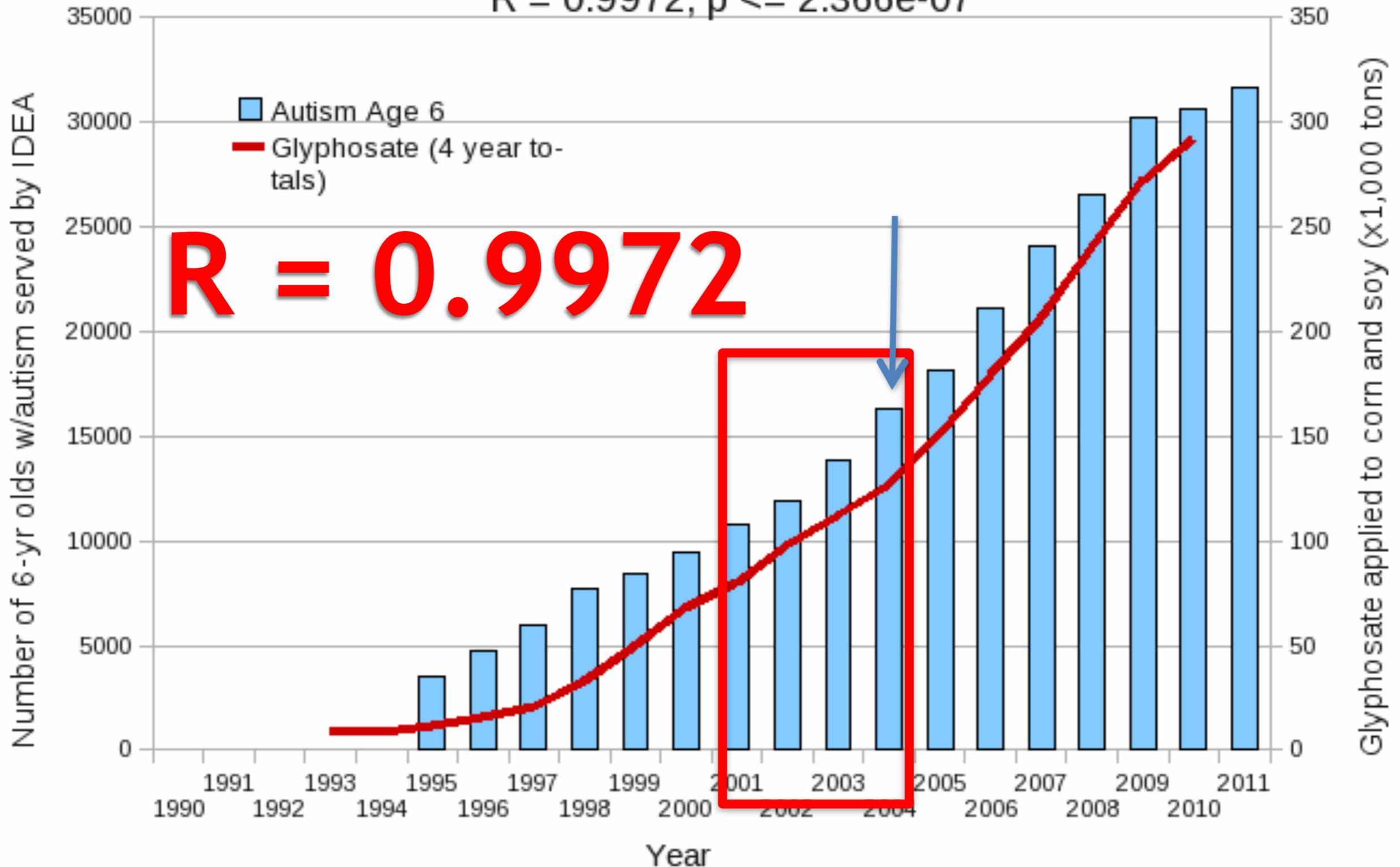
- Data suggest ~75-80% of the tracked increase in autism since 1988 is due to *an actual increase* in the disorder rather than to changing diagnostic criteria
- Polybrominated diphenyl ethers (fire retardants), *aluminum* adjuvants, and the herbicide *glyphosate* have increasing trends that correlate positively to the rise in autism.

\*C. Nevison *Environmental Health* 2014;13:73.

# Autism Prevalence: 6 year olds

glyphosate is total of year indicated + 3 previous years

$R = 0.9972, p \leq 2.366e-07$

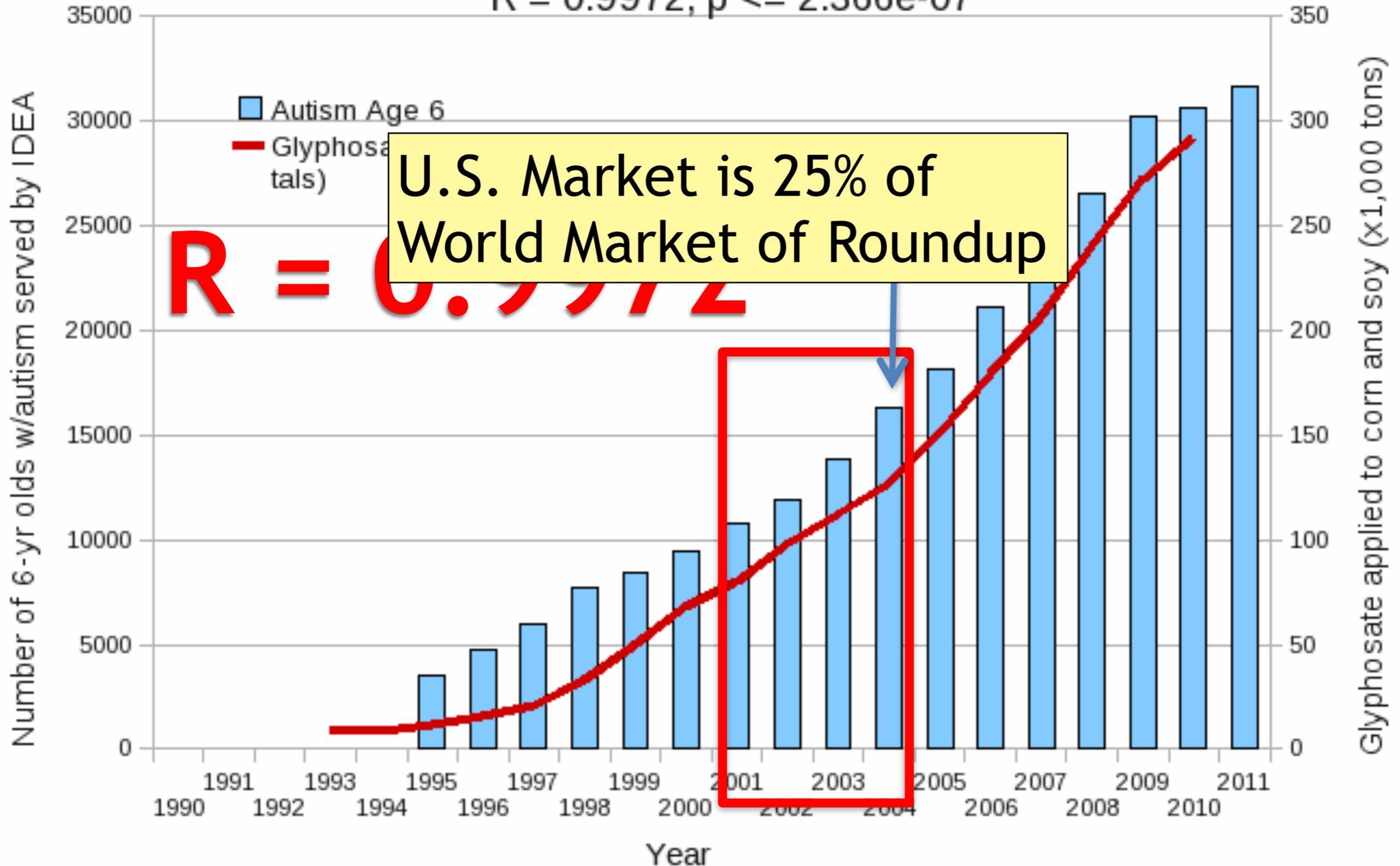


Data sources: autism: US Department of Education; Glyphosate: US Department of Agriculture

# Autism Prevalence: 6 year olds

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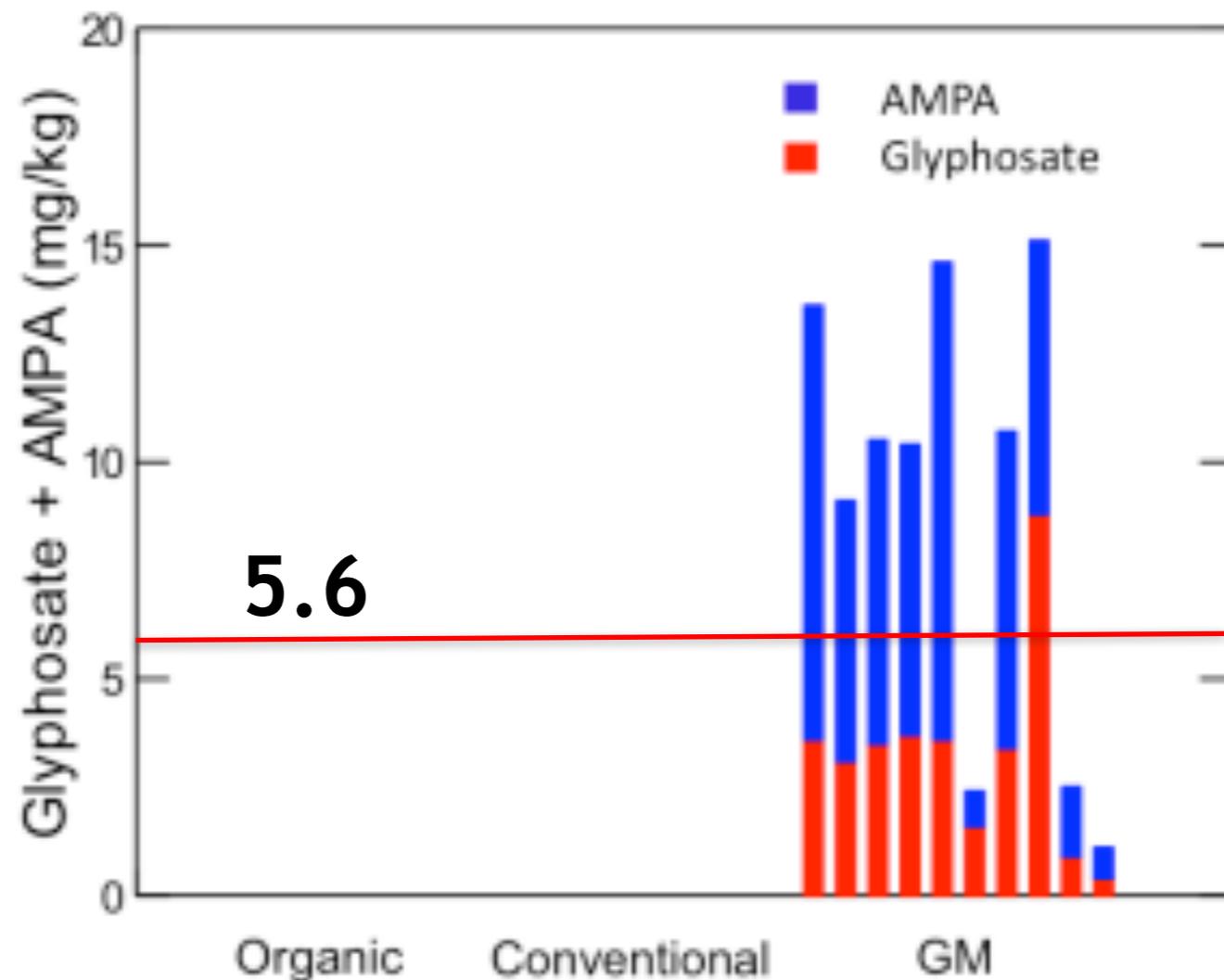


Data sources: autism: US Department of Education; Glyphosate: US Department of Agriculture

# Glyphosate Test Report: Findings in American Mother's Breast milk, urine and water\*

- Moms Across America initiative!
- Breast milk levels ranging from 76 ug/l to 166 ug/l are 760 to 1600 times higher than the European Drinking Water Directive allows
- Urine testing shows glyphosate levels over 10 times higher than in Europe
- Monsanto is wrong regarding bioaccumulation

# Study of glyphosate and AMPA (breakdown product) residues in soy crops\*



“Another claim of Monsanto's has been that residue levels of up to **5.6** mg/kg in GM-soy represent “...*extreme levels*, and far higher than those typically found” (Monsanto 1999).

# Soy Formula Linked to Seizures in Autism\*

*"There was a 2.6-fold higher rate of febrile seizures, a 2.1-fold higher rate of epilepsy comorbidity and a 4-fold higher rate of simple partial seizures in the autistic children fed soy-based formula"*



\*CJ Westmark, PLOSOne March 12, 2014, DOI: [10.1371/journal.pone.0080488](https://doi.org/10.1371/journal.pone.0080488).

# Some Biomarkers for Autism

- Disrupted gut bacteria; inflammatory bowel
- Low serum sulfate
- Methionine deficiency
- Serotonin and melatonin deficiency
- Defective aromatase
- Zinc and cobalamin deficiency
- Urinary p-cresol
- Mitochondrial disorder
- Seizures; Glutamate toxicity in the brain

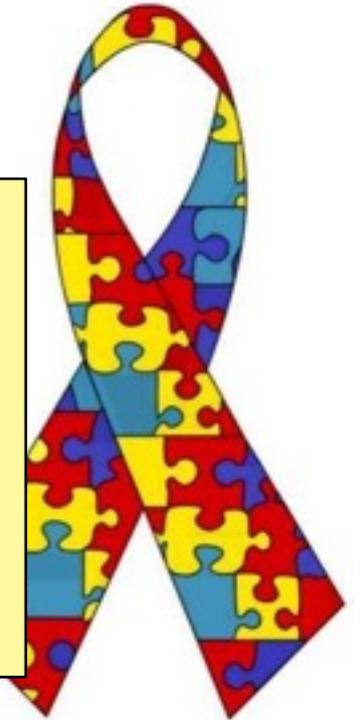


# Some Biomarkers for Autism

- Disrupted gut bacteria; inflammatory bowel
- Low serum sulfate

These can all be explained as potential effects of glyphosate on biological systems

- Zinc and iron deficiency
- Urinary p-cresol
- Mitochondrial disorder
- Seizures; Glutamate toxicity in the brain



# Glyphosate Suppresses Melatonin Synthesis

- Glyphosate interferes with shikimate pathway in plants and microbes & causes tryptophan depletion\*
- Tryptophan is sole precursor to melatonin
- Melatonin binds to aluminum, cadmium, copper, iron and lead, reducing their toxicity\*\*
- Melatonin is produced by the pineal gland and regulates the wake/sleep cycle



\*\*J. Limson et al. J. Pineal Res. 1998; 24:15-21.

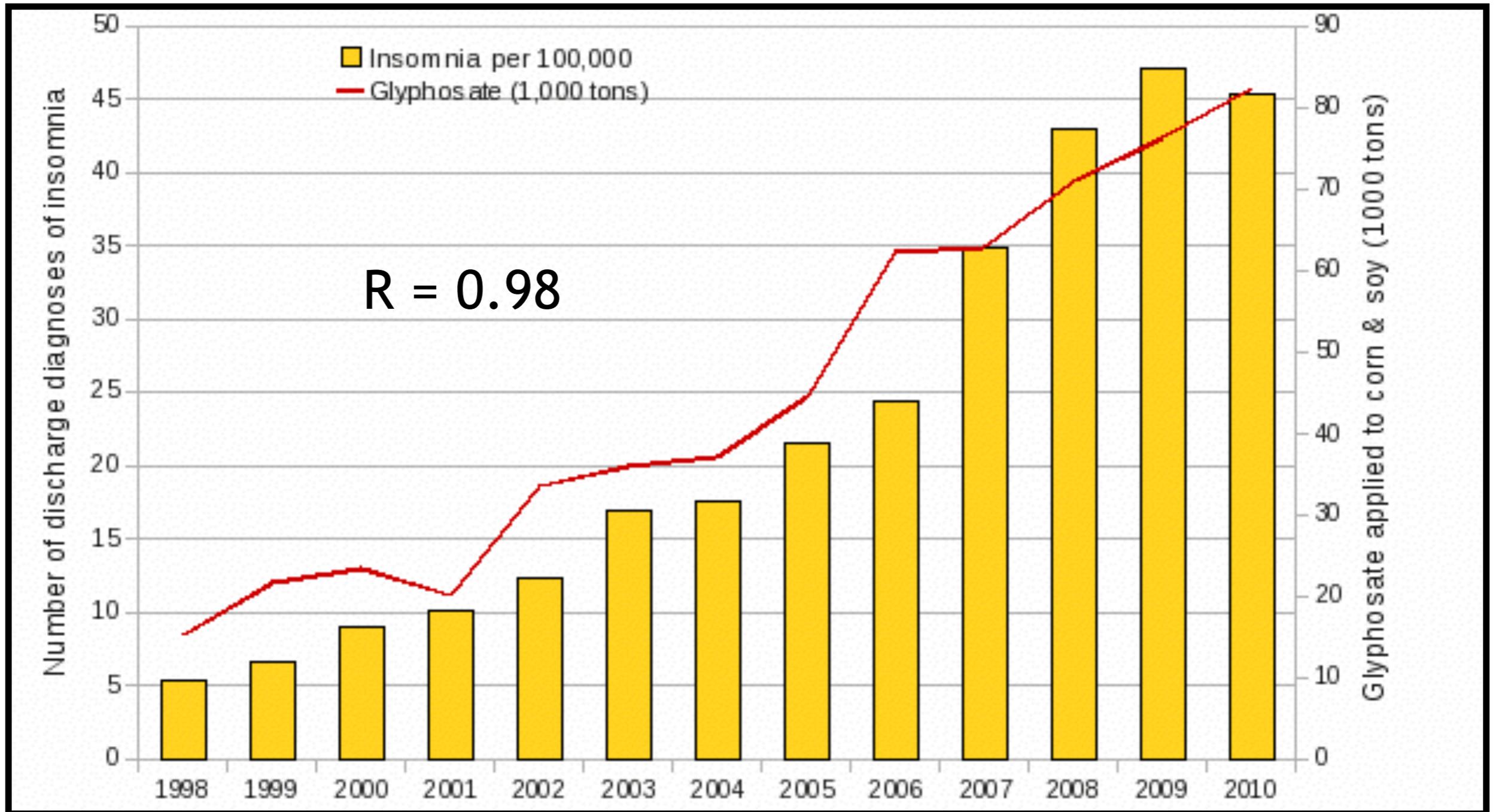
\*N. de María et al., J Agric Food Chem 2006, 54, 2621-2628.

# Sleep Disorder, Aluminum, and the Pineal Gland

- Sleep disorder is linked to many neurological diseases:
  - Autism, Alzheimer's, ADHD, depression, schizophrenia, ALS, Parkinson's disease, etc.
- Insomnia occurs much more frequently as an adverse reaction to vaccines containing aluminum than to those not containing aluminum ( $p < 0.0025$ )\*
- Insomnia also occurs much more frequently in ALL adverse reactions after the year 2000 compared to before 2000 ( $p < 0.009$ )\*
- Pineal gland is heavily perfused and outside of the blood brain barrier
  - Susceptible to aluminum toxicity

\*Seneff et al., *Entropy* **2012**, *14*, 2227-2253.

# Insomnia is Strongly Correlated with Glyphosate Usage



Data from CDC Hospital Discharge database

# Aluminum in the Pineal Gland\*

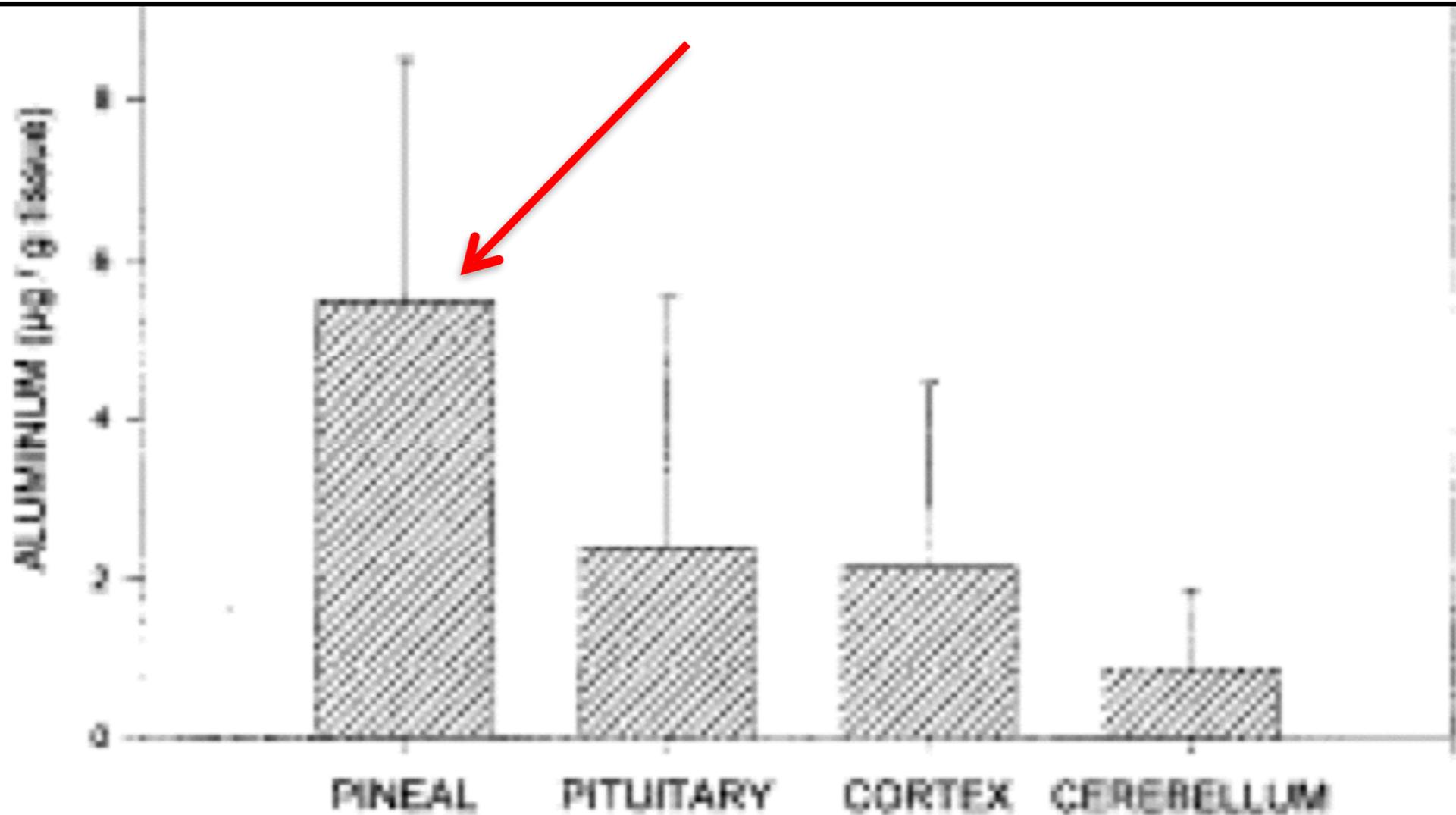


Fig. 6. Aluminum contents of brain tissues (mean  $\pm$  SD). The results are expressed per unit weight of dried tissues. Four samples of each tissue were examined.

\*S.B. Lang et al./Bioclectrochemistry and Bioenergetics 41(1996)191–195

# Glyphosate and Aluminum: Double Trouble

- Glyphosate induces pathogens like *C. difficile* in gut, leading to *leaky gut syndrome*
  - *C. diff* produces *p-cresol* which promotes aluminum uptake by cells
  - p-Cresol is a known biomarker for autism
  - p-Cresol is an important factor in *kidney failure* which leads to aluminum retention in tissues in dementia
- Glyphosate *cages* aluminum to promote entry
- Glyphosate promotes *calcium uptake* by voltage-activated channels
  - Aluminum gains entry as calcium mimetic

**Glyphosate enhances aluminum toxicity**

**Glyphosate interferes with acetaminophen metabolism**

*Entropy* **2012**, *14*, 2227-2253; doi:10.3390/e14112227

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ISSN 1099-4300

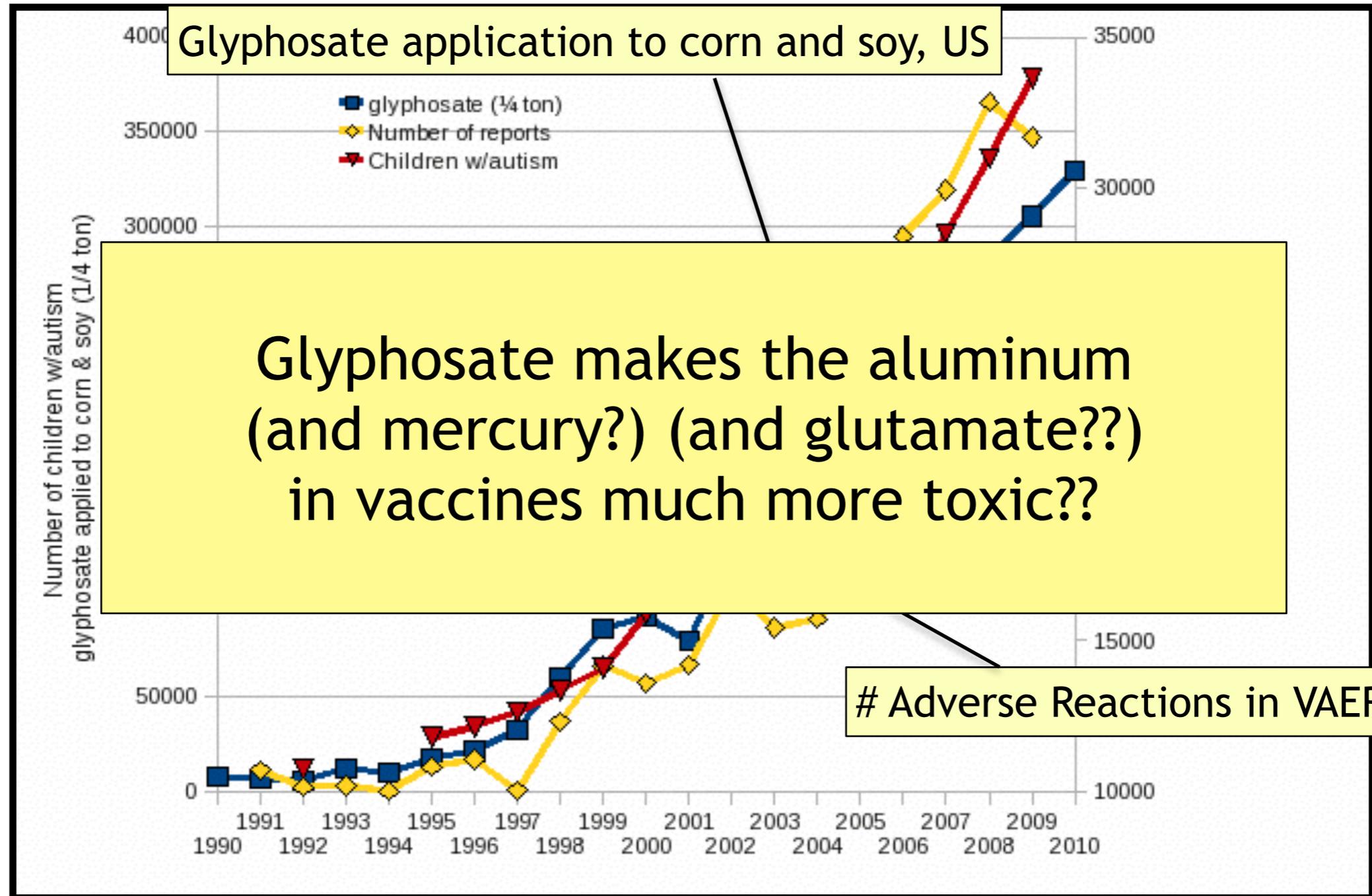
[www.mdpi.com/journal/entropy](http://www.mdpi.com/journal/entropy)

*Review*

## **Empirical Data Confirm Autism Symptoms Related to Aluminum and Acetaminophen Exposure**

**Stephanie Seneff <sup>1,\*</sup>, Robert M. Davidson <sup>2</sup> and Jingjing Liu <sup>1</sup>**

# Autism, Glyphosate, Vaccine Reactions\*



# Glutamate is an Additive in Vaccines!

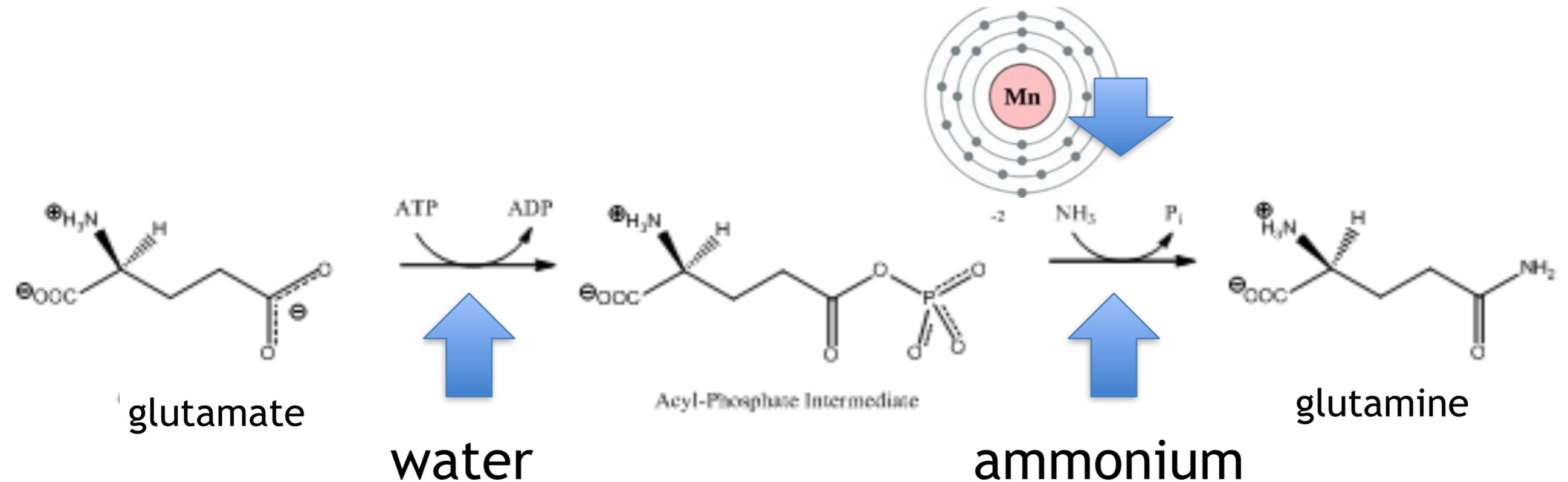
- Flu vaccines (FluMist), MMR (measles, mumps and rubella), Rabies vaccine and Varicella vaccine (chicken pox) all contain glutamate
- Anecdotal evidence links these vaccines with autism
- My own studies on VAERS revealed a correlation between autism and MMR\*
- **Glyphosate's depletion of manganese prevents glutamate breakdown**



\*S. Seneff et al., Entropy 2012, 14, 2227-2253.

# Glutamate Detoxification Depends on Manganese

## Glutamine synthetase



Ammonium and glutamate toxicity in the brain can arise because of insufficient manganese

# “Alteration of Plasma Glutamate and Glutamine Levels in Children with High-Functioning Autism”\*

Amino acid	Control	HFA	p-value
Alanine	326.1±61.6	300.3±55.0	0.145
α-Aminobutyric acid	18.8±3.8	18.7±5.4	0.971
Arginine	89.1±19.0	95.3±18.5	0.279
Asparagine	40.8±8.3	43.1±7.0	0.311

Glutamate	20.9±4.5	27.9±7.4	<0.002*
Glutamine	513.1±48.5	445.8±50.6	<0.0004**

Isoleucine	53.6±11.5	62.2±14.5	0.033
Leucine	99.0±16.1	106.4±22.4	0.210
Lysine	155.3±28.5	164.2±32.5	0.332
Methionine	23.7±5.1	25.8±5.6	0.203
Ornithine	43.9±11.3	51.9±10.8	0.021
Phenylalanine	51.7±6.8	55.1±8.4	0.146
Proline	153.7±56.4	131.7±47.6	0.165
Serine	105.4±15.6	115.8±14.7	0.027
Taurine	33.4±5.5	37.8±7.9	0.036
Threonine	100.8±19.7	112.0±24.3	0.097
Tryptophan	44.8±5.6	47.3±6.4	0.167
Tyrosine	60.9±10.5	58.4±10.1	0.425
Urea	3976.3±818.7	3759.9±773.3	0.367
Valine	200.2±29.4	217.1±29.7	0.062

\*C. Shimmura et al.  
PLoSone October  
2011 6(1):e25340

# Symptoms of Adverse Reactions to MMR before and after 2002\*

## More Common Before 2002

Reaction	Count Before 2002	Count After 2002	<i>p</i> -value
Joint pain	126	65	0.036

## More Common After 2002

Reaction	Count Before 2002	Count After 2002	<i>p</i> -value
hospitalization	71	319	0.00037
seizures	203	462	0.0014
shortness of breath	100	216	0.010
hives	324	504	0.011
mumps	5	51	0.014

These are all characteristic symptoms of allergies to MSG

anemia	69	145	0.024
eczema	4	36	0.026
ear infection	16	56	0.031
anaphylactic shock	16	54	0.034
Facial swelling	45	95	0.040
swelling	860	1018	0.048

\*Data analyzed from the VAERS database

# *In Summary*

- Glyphosate's inhibition of the shikimate pathway likely impairs melatonin synthesis
  - Leads to sleep disorder, associated with many diseases
- Pineal gland is highly susceptible to aluminum
- Glyphosate promotes aluminum entry past the gut and brain barriers and uptake by the cells
- Glyphosate also promotes glutamate toxicity due to manganese deficiency, leading to acute reaction to glutamate in MMR vaccine and other vaccines

# Autism Linked to Oxalate Crystals\*

- Crystals of oxalate form kidney stones and cause great discomfort
- Study has shown at least 3-fold higher serum and urinary levels of oxalate in autistic kids\*\*



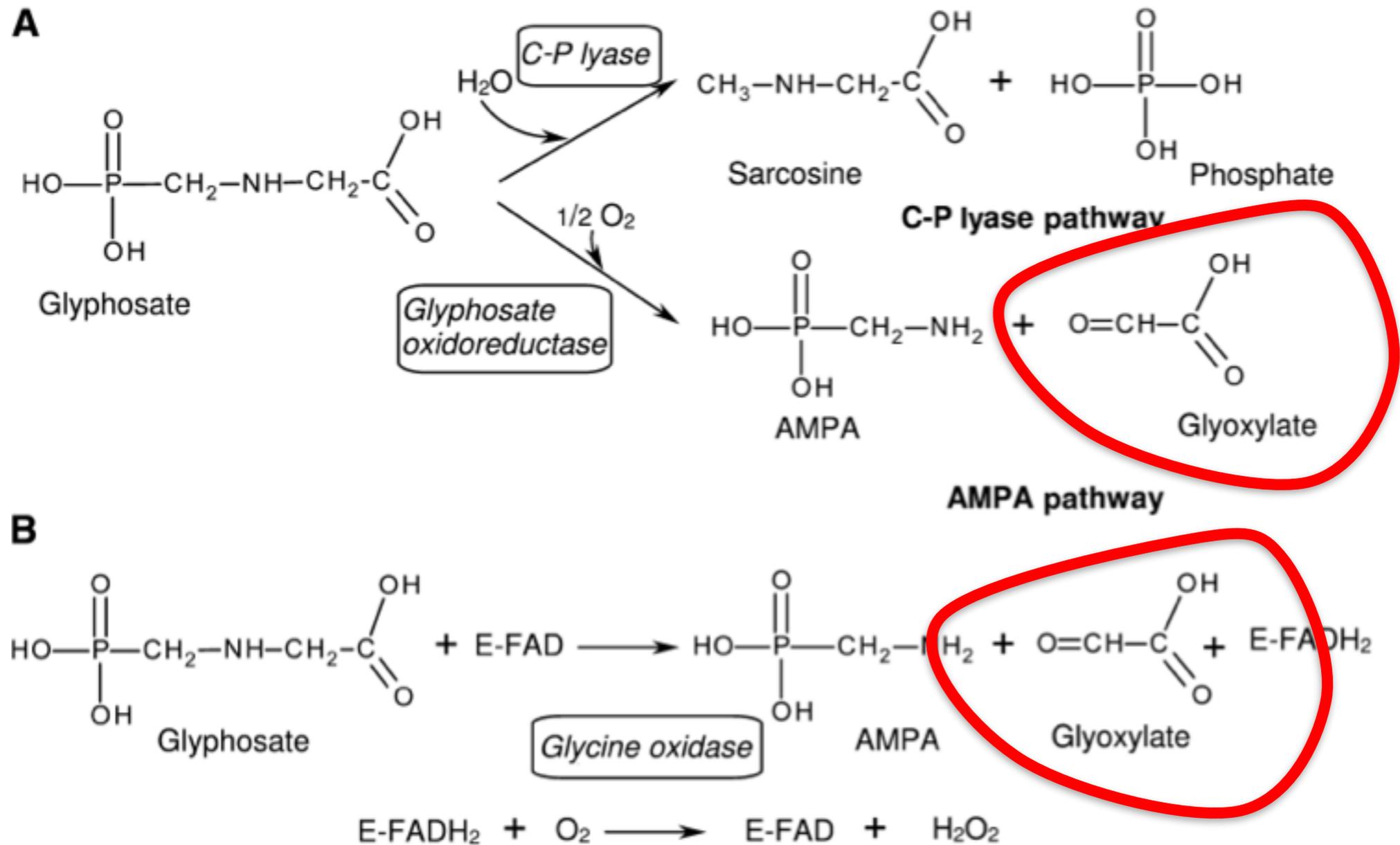
“Cerebral edema, and perhaps injury to other organs, could result from oxalate crystal deposition in small blood vessels in the brain and other organs.”\*

\*K Froberg et al., Clin Toxicol (Phila). 2006;44(3):315-8.

\*William Shaw, The Role of Oxalates in Autism and Chronic Disorders WAPF, March 26, 2010

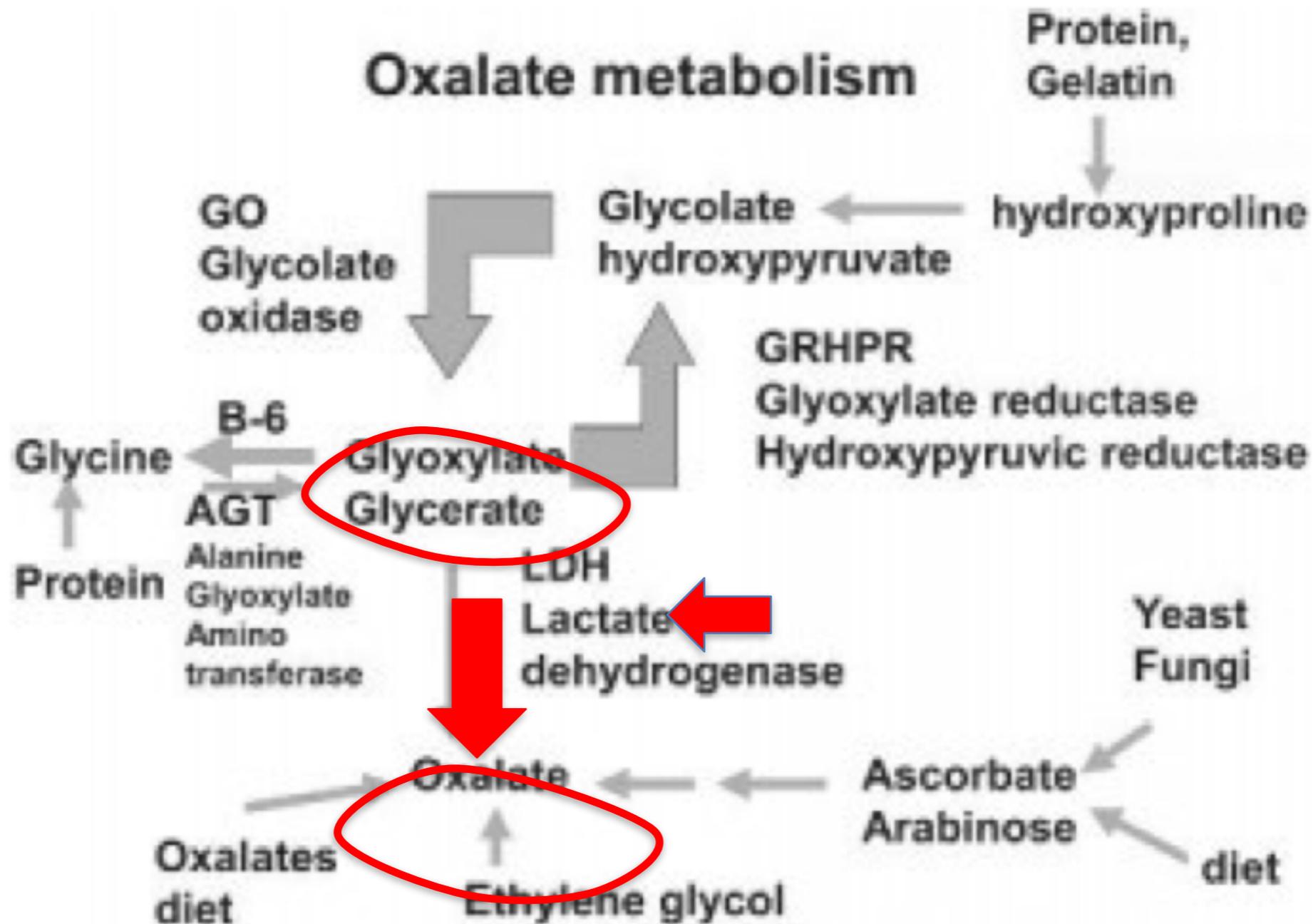
\*\*J Konstantynowicz et al., European Journal of Paediatric Neurology 16(5), 2012, 485-491

# Glyphosate Metabolism\*



\*Figure 3 in L. Polligioni et al., FEBS Journal 278 (2011) 2753–2766

# Oxalate Metabolism\*



**Hypothesis:** flooding with oxalate prevents metabolism of glyoxylate to oxalate. Glyoxylate is a very potent glycating agent, leading to widespread damage. This also inhibits glyphosate breakdown to glyoxylate.

# Monsanto Patents: 2002-2010: Pesticide Compositions Containing Oxalic Acid

“[origin: WO02069718A2] Pesticidal concentrate and spray compositions are described which exhibit *enhanced efficacy* ... More particularly, the present invention relates to a method of enhancing the herbicidal effectiveness of *glyphosate* concentrate and tank mix formulations containing one or more surfactants through the addition of *oxalic acid*.”



US007723265B2

(12) **United States Patent**  
Xu et al.

(10) **Patent No.:** US 7,723,265 B2  
(45) **Date of Patent:** \*May 25, 2010

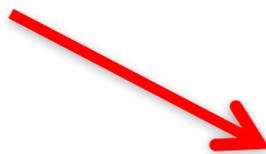
(54) **PESTICIDE COMPOSITIONS CONTAINING  
OXALIC ACID**

(75) **Inventors:** Xiaodong C. Xu, Valley Park, MO (US);  
Ronald J. Brinker, Ellisville, MO (US);  
Tracey L. Reynolds, Ballwin, MO (US);  
William Abraham, Wildwood, MO  
(US); Jeffrey A. Graham, Wildwood,  
MO (US)

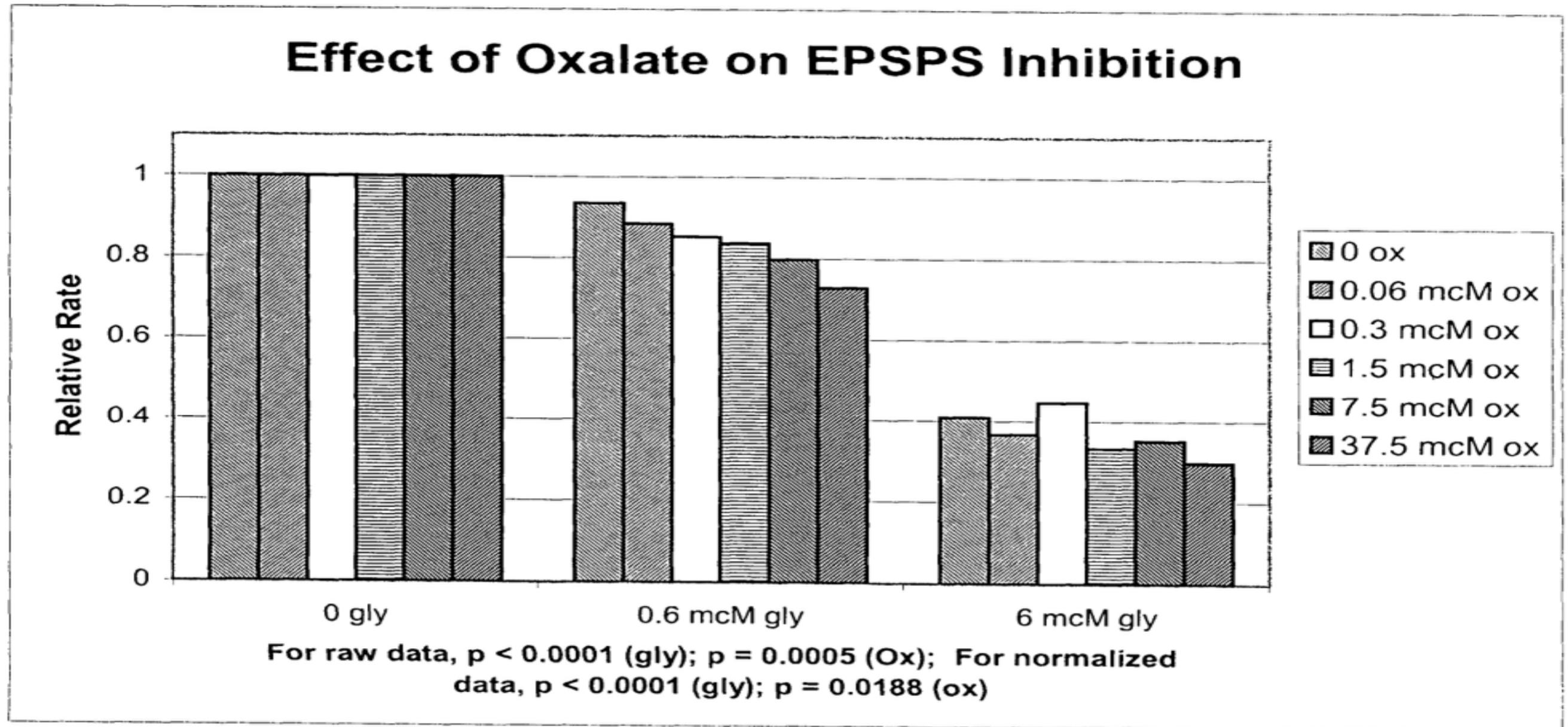
(73) **Assignee:** Monsanto Technology, St. Louis, MO  
(US)

4,140,513 A	2/1979	Prill
4,159,901 A	7/1979	Beestman et al.
4,161,590 A	7/1979	Mueller
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5,317,003 A	5/1994	Kassebaum et al.

**Monsanto Technology,  
St. Louis, MO**

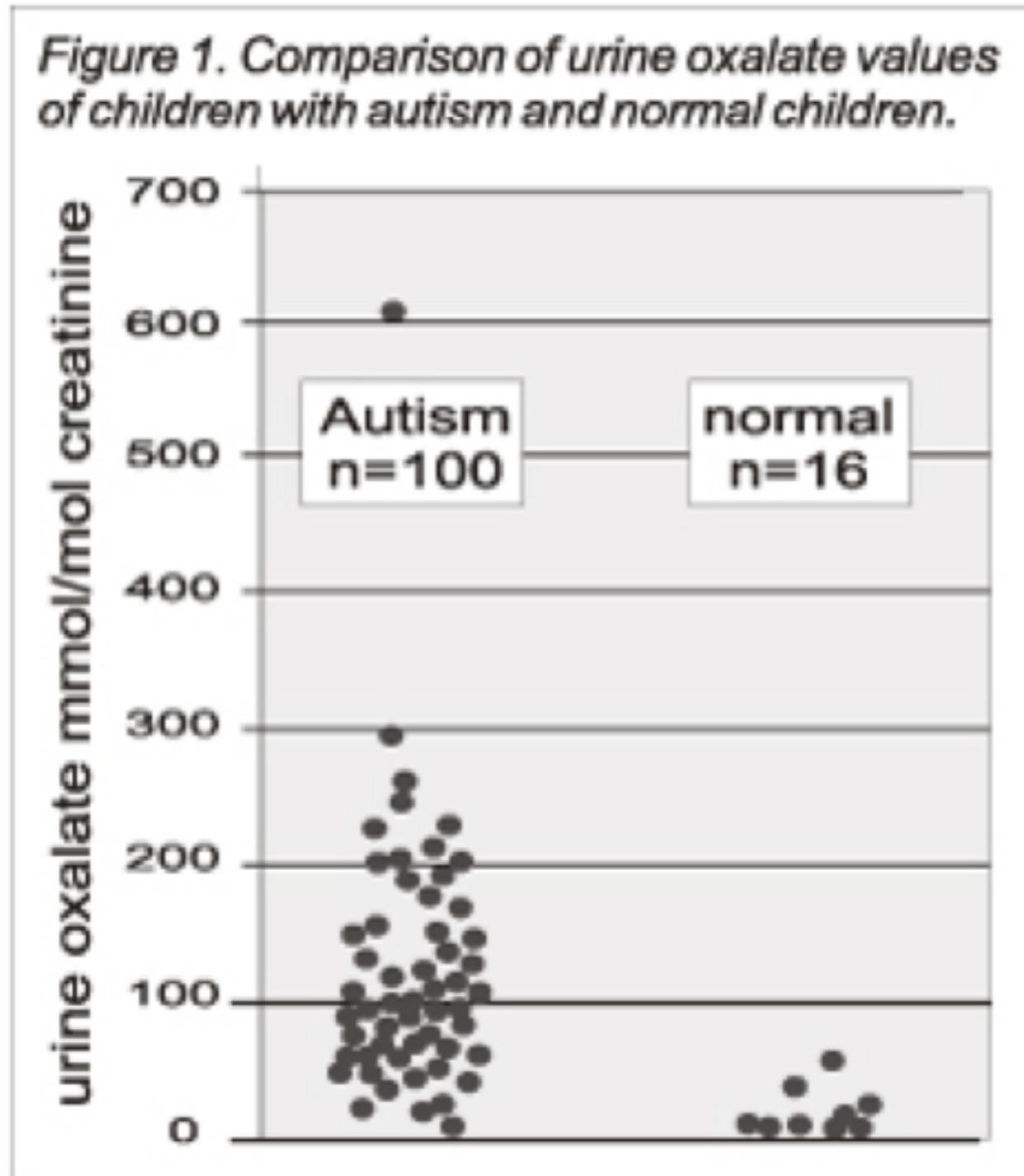


# Oxalate Enhances Glyphosate's Toxicity to Plants at Small Concentrations\*

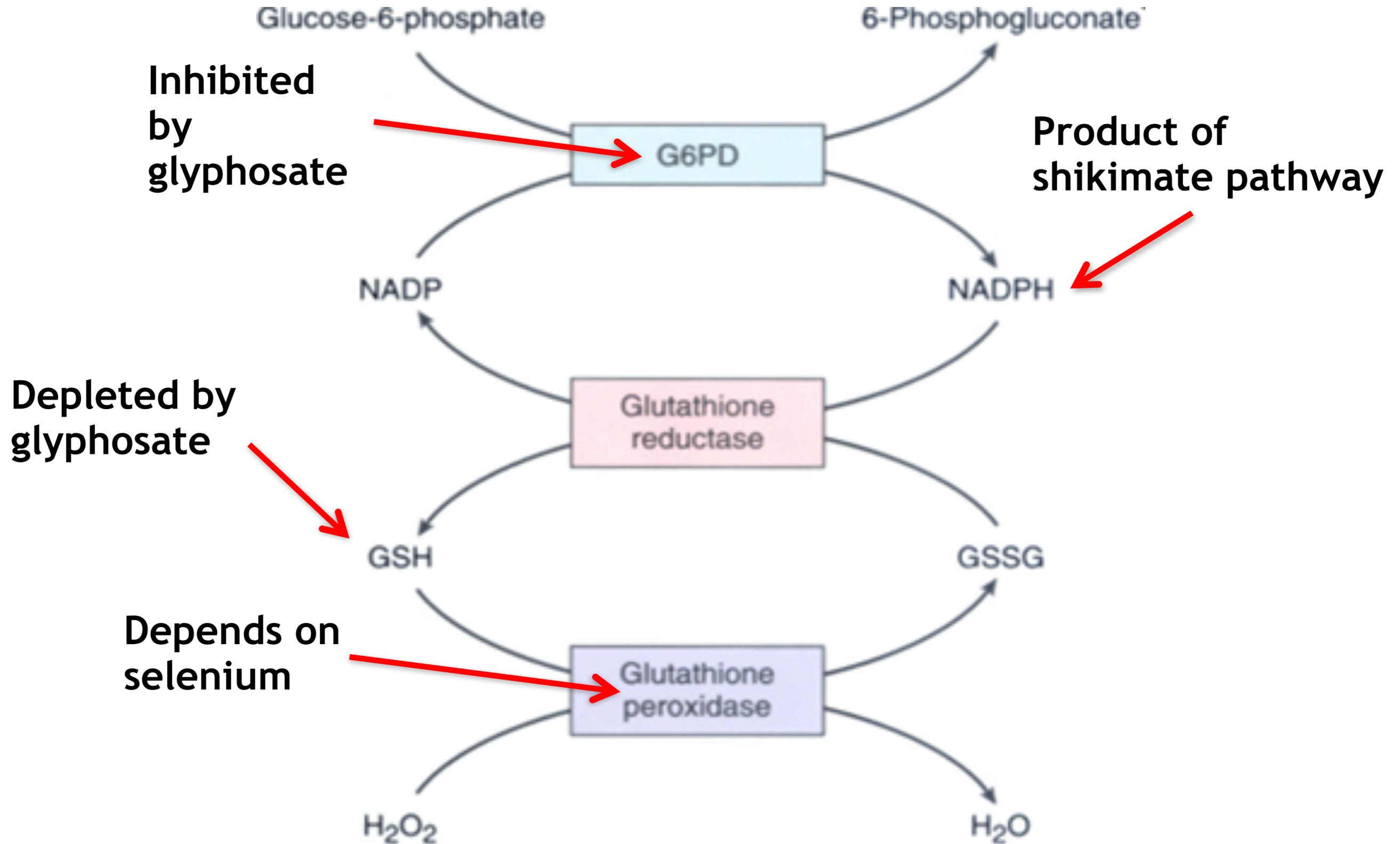


\*Figure 1, Monsanto Patent #US 7,771,736 B2, Aug. 10, 2010

Oxalate crystals in the bone may crowd out the bone marrow cells, leading to anemia and immunosuppression\*



# This Detoxification Scheme is Essential in Red Blood Cells



# Summary

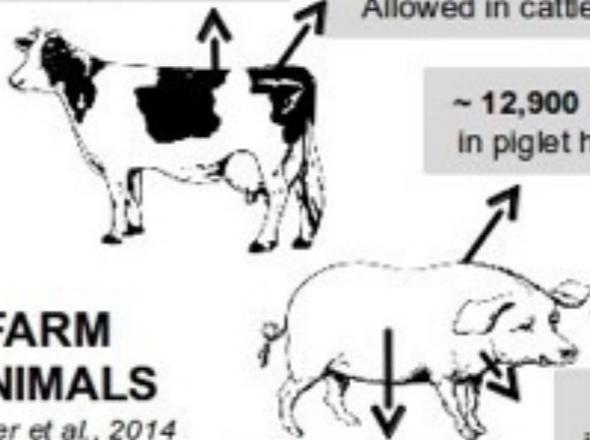
- Glyphosate contamination in our food supply is a serious threat to human health
- Glyphosate is implicated in autism, breast cancer, Celiac disease, vitamin D deficiency, sleep disorders, osteoarthritis and many other health issues
- Suspected addition of oxalate to the formulation in 2005 led to significant increases in toxicity to both plants and animals
- Iron dysbiosis and anemia are important factors
- Glyphosate may be working synergistically with vaccine ingredients to cause increased harm
- Glyphosate may play a significant role in climate change

**CROPS**  
*Bohn et al., 2014*



~ 11,900 ppb  
 in GM soybean

**FARM ANIMALS**  
*Kruger et al., 2014*



10-103 ppb  
 In dairy cow urine

5,000 ppb  
 Allowed in cattle meat

~ 12,900 ppb  
 in piglet heart

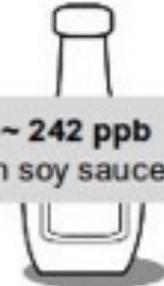
~ 3,100 ppb  
 in piglet brain

~ 4,900 ppb  
 in piglet muscles

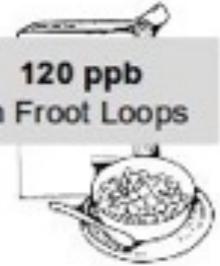
~ 7,700 ppb  
 in piglet lung

**Glyphosate  
 is virtually everywhere  
 in the food chain**

**FOODSTUFFS**  
*Rublo et al., 2014  
 GMO Free USA report*



~ 242 ppb  
 in soy sauce



120 ppb  
 in Froot Loops



~ 64 ppb  
 in honey

**TAP WATER**  
*Moms Across America  
 survey*

~ 0.14 ppb  
 in US tap water



**BABY & CHILDREN'S FOOD**  
*Moms Across America survey*



76-166 ppb  
 In mothers' breast milk

80-111 ppb  
 In feeding tube liquid

170 ppb  
 In an infant formula

# Going organic for 1 week cuts pesticide exposure by 90%

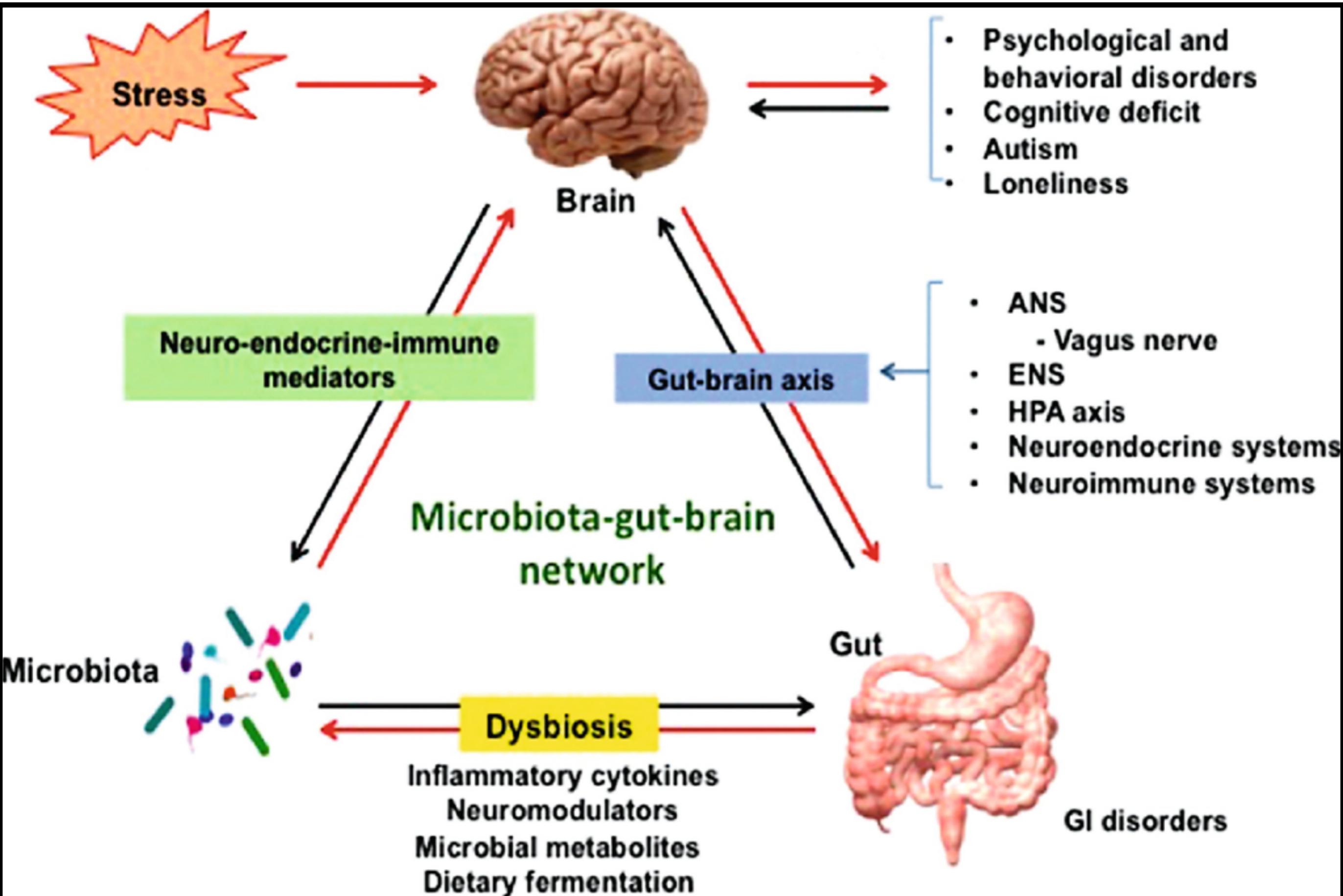
Published in the journal *Environmental Research*, the small-scale trial found that one week of eating mostly organic food reduced organophosphate pesticide levels in urine by 90%!

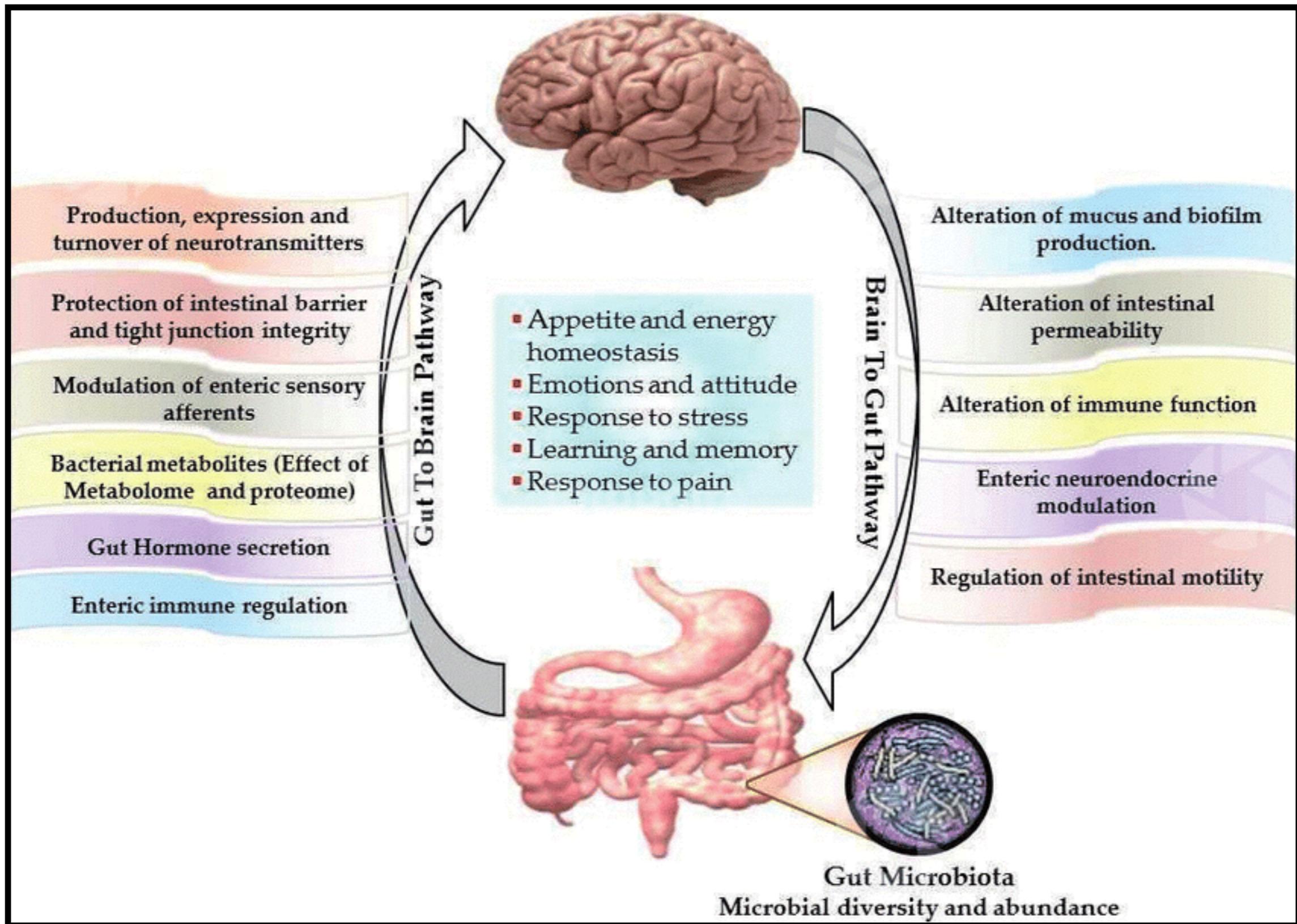
Conventional food production commonly uses organophosphate pesticides, which are neurotoxins that act on the nervous system of insects - and humans - by blocking an important enzyme.

# Part 3

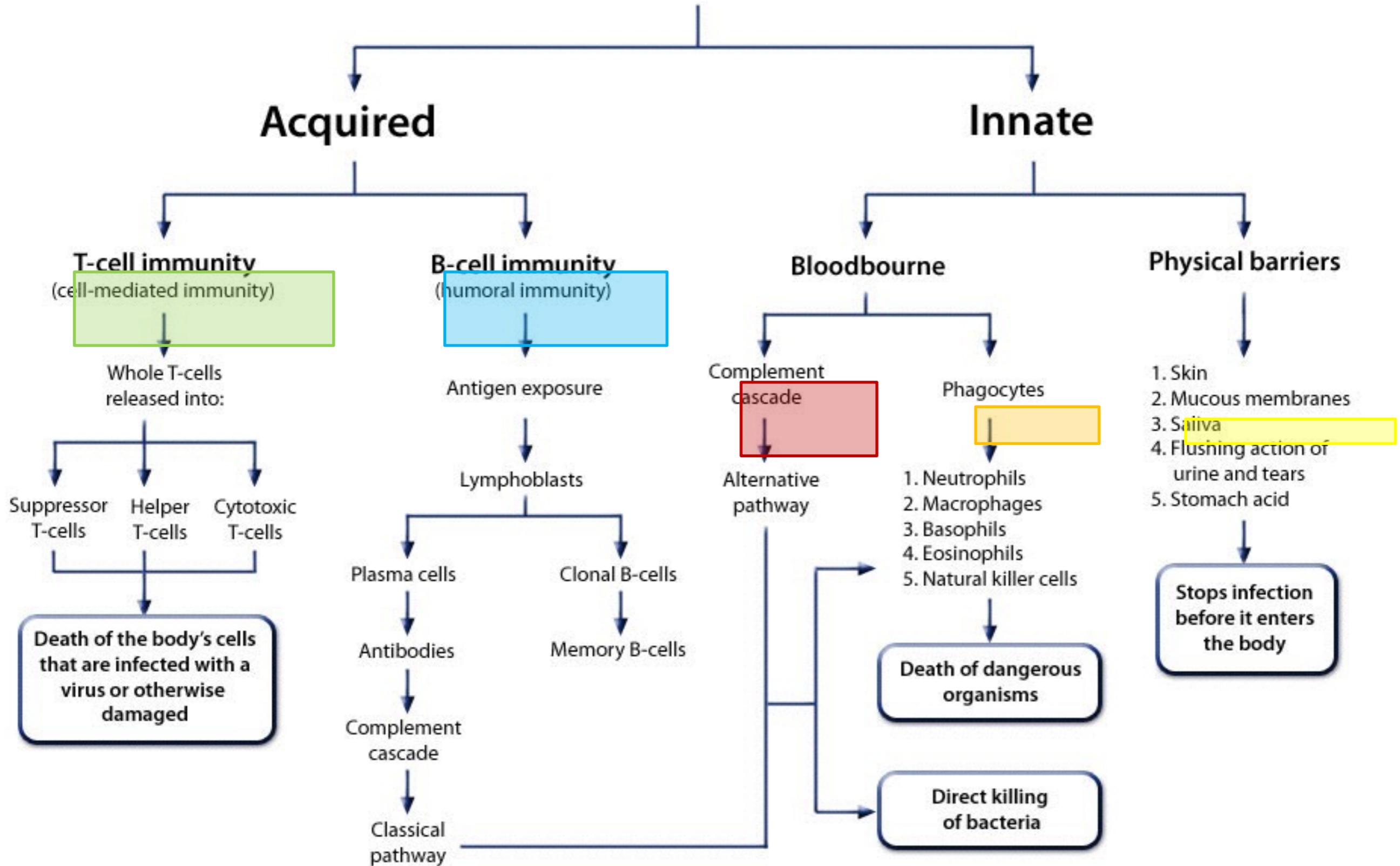
## Role of MicroNutrients Across the Entire Body







# Immune system



# Foods to Avoid

- High-sugar fruits: Bananas, dates, raisins, grapes and mango.
- Grains that contain gluten: Wheat, rye, barley and spelt.
- Certain meats: Deli meats and farm-raised fish.
- Refined oils and fats: Canola oil, soybean oil, sunflower oil or margarine.
- Condiments: Ketchup, soy sauce, white vinegar, BBQ sauce, horseradish or mayonnaise.
- Certain dairy products: Cheese, milk and cream.
- Sugar and artificial sweeteners: Aspartame, agave, cane sugar, corn syrup, honey, maple syrup, molasses and table sugar.
- Nuts and seeds higher in mold: Peanuts, cashews, pecans and pistachios.
- Caffeine, alcohol and sugary beverages: Caffeinated teas, coffee, energy drinks, soda, fruit juice, beer, wine or spirits.
- Additives: Nitrates or sulfates.
- white sugar
- white flour
- alcohol
- caffeine
- soda
- fried food
- processed food
- fast food
- artificial sweeteners

# Protein-energy malnutrition

- Causes
  - Limited food access
  - Chronic disease
  - Chronic Pain
  - Dental/Feeding issues
  - Medications
  - Severe dieting

**Table 1. Malnutrition risk factors**

Factor	Possible causes
Psychological, social, and environmental	Social isolation Grieving Financial difficulties Ill-treatment Hospitalisation Change in lifestyle: Admission to an institution
Oral and dental disorders	Mastication disorders Poor dental status Poorly fitting dentures Dryness of the mouth Oropharyngeal candidiasis Dysgueusia
Swallowing disorders	ENT disease Vascular neurodegenerative disease
Psychiatric disorders	Depressive syndromes Behavioural disorders
Dementia	Alzheimer's disease Other forms of dementia
Other neurological disorders	Confusional syndrome Consciousness disorders Parkinsonism
Long-term drug treatment	Polymedication Medication causing dryness of the mouth, dysgueusia, gastrointestinal disorders, anorexia, drowsiness etc. Long-term corticosteroid therapy
Any acute disorder or decompensation of a chronic disease	Pain Infectious disease Fracture causing a disability Surgical procedure Severe constipation Pressure sores
Dependency for daily activities	Eating dependency Mobility dependency
Restrictive diets	Salt-free Slimming Diabetic Cholesterol-lowering Long-term residue-free diets

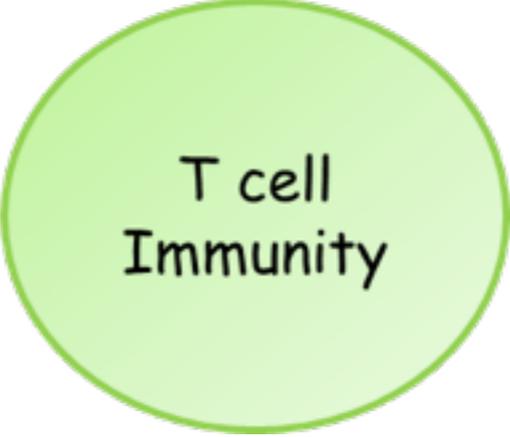
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Dependency for daily activities	Eating dependency Mobility dependency
Restrictive diets	Salt-free Slimming Diabetic Cholesterol-lowering Long-term residue-free diets

# Protein-energy malnutrition

- Innate Immunity
  - Impaired phagocyte function
- Adaptive Immunity
  - T cells
    - Decreased numbers and function
    - Increased susceptibility to opportunistic infections



Phagocytes



T cell  
Immunity



# Micronutrients

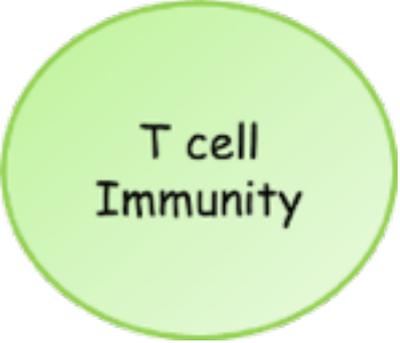
- Iron
- Zinc
- Copper
- Selenium
- Vitamins

# Micronutrients- Iron

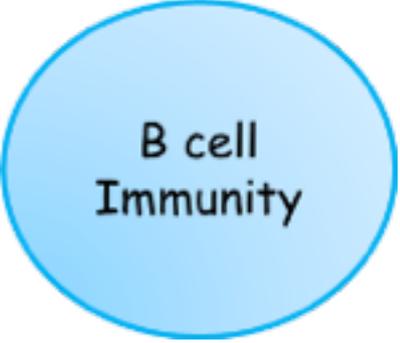
- Deficiency associated with:
  - Anemia, paleness, fatigue
  - Infections
- Immune issues
  - Reduced phagocyte activity
  - Impaired T cell response
    - Risk of parasite and Candida infections
  - Reduced immunoglobulin levels



Phagocytes



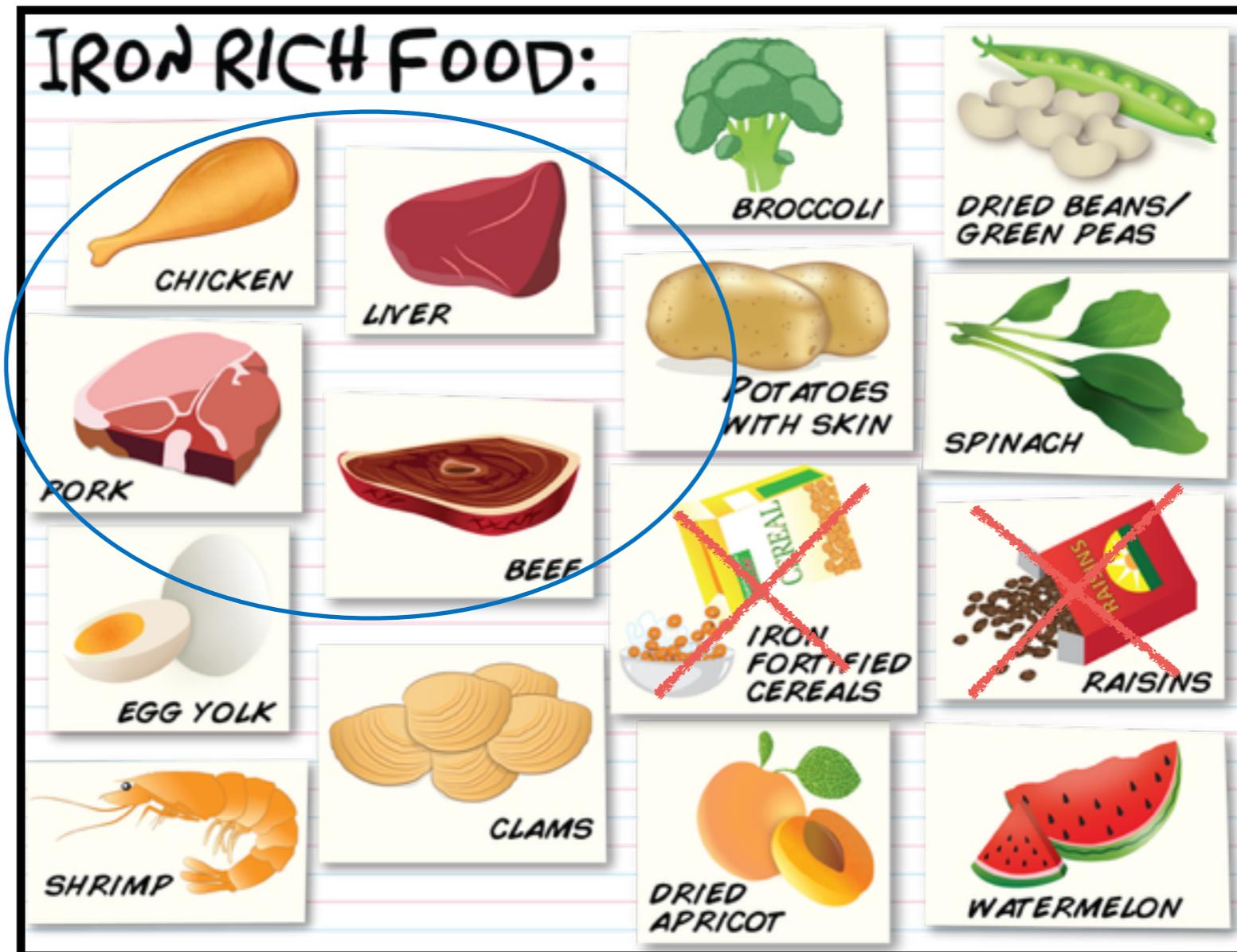
T cell  
Immunity



B cell  
Immunity

# Micronutrients- Iron

- Supplementation
  - Recommended: 7-18mg/day



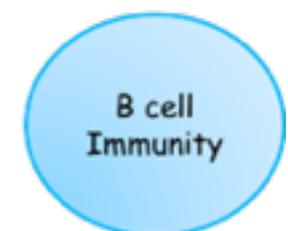
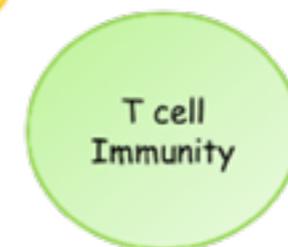
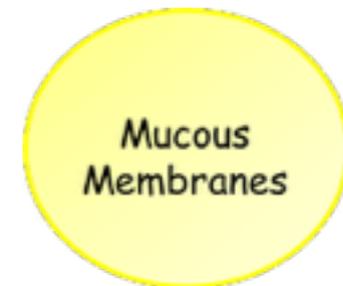


# Micronutrients- Zinc

- Stimulates T cell production and subtype switching
- Stimulates complement system
- Stimulates phagocytes
  - Reduction in risk of pneumonia
  - Reduction in common cold symptoms
  - Reduction in infectious diarrhea (world-wide)
- Antioxidant/Inflammatory Control

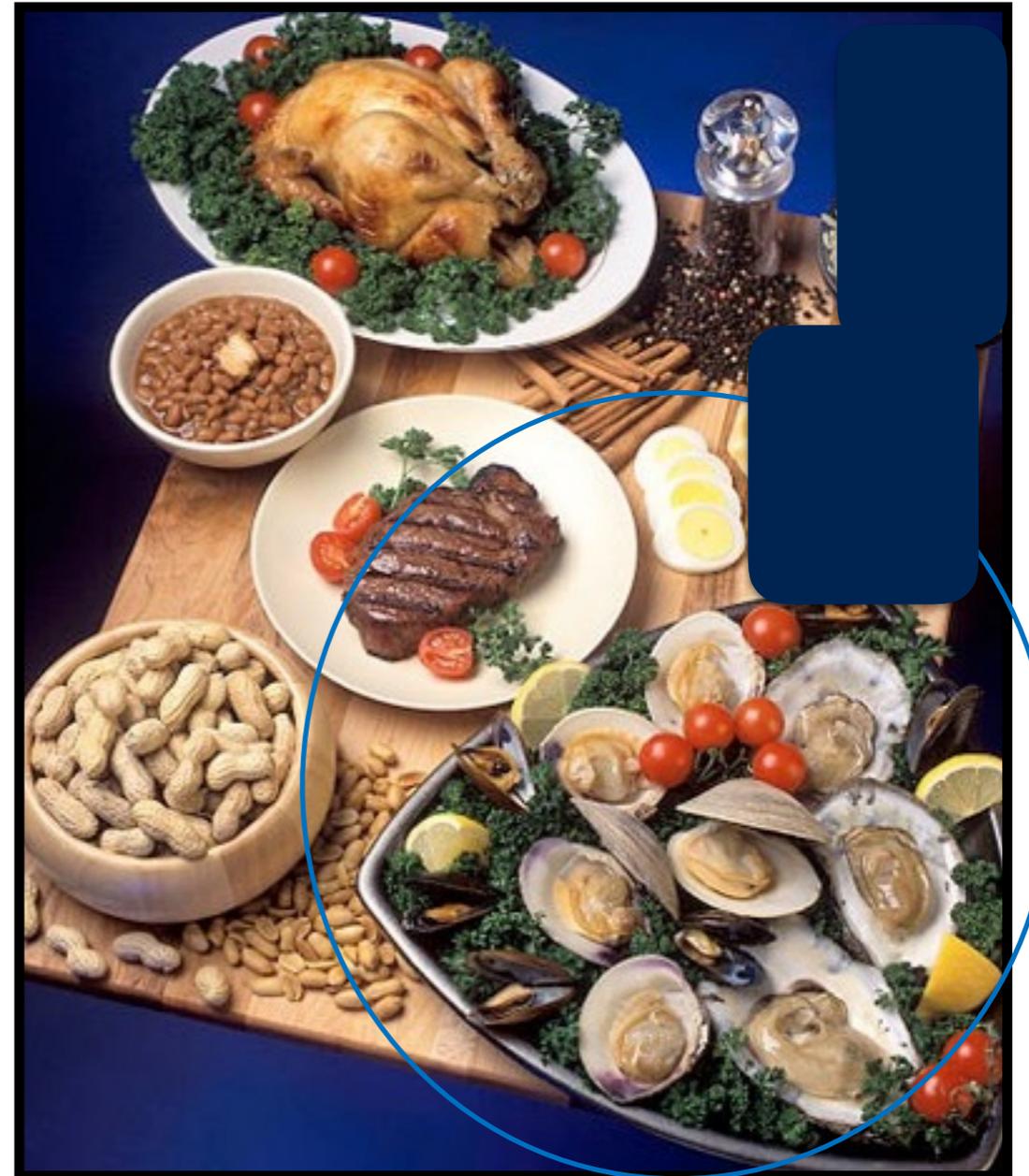
# Micronutrients- Zinc

- Deficiency associated with:
  - Skin lesions, hair loss
  - Loss of taste and smell, diarrhea
  - Infections, poor wound healing
- Immune issues
  - Increased susceptibility to infections (skin and GI system)
  - Impaired phagocytosis
  - Impaired NK cell activity
  - Low T and B cells



# Micronutrients- Zinc

- Supplementation
  - Recommended daily dose: 3-11 mg/day of elemental zinc



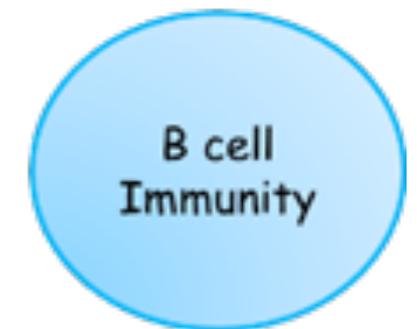
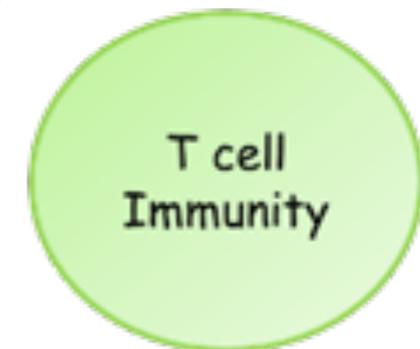


# Micronutrients- Copper

- Promotes T and B cell responses
  - IL-2 production
- Promotes phagocyte function

# Micronutrients- Copper

- Deficiency associated with:
  - Neutropenia, anemia
  - Neurologic issues
- Immune issues
  - Low white blood cells
  - Reduced T cell responses
  - Reduced phagocyte responses
    - Neutropenia



# Micronutrients- Copper

- Supplementation
  - Recommended: 350-900 mcg/day



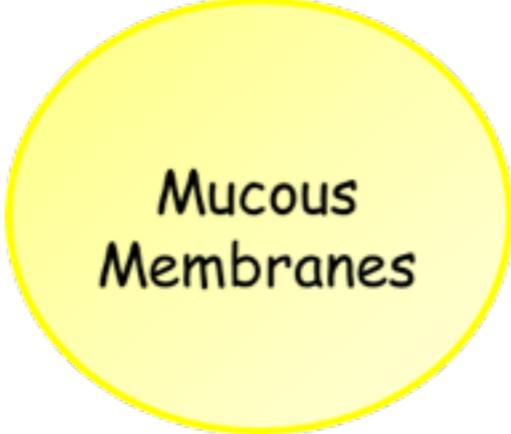


# Micronutrients- Selenium

- Antioxidant effects
  - Promotes production of limited reactive oxygen species (ROS) to fight infections
- Stimulates general immune responsiveness
  - T and B cell activation
  - Cytokine release

# Micronutrients- Selenium

- Deficiency associated with:
  - More severe effects of viral infections
  - Muscle aches
- Immune issues
  - Loss of antioxidant host defense
  - Decreased white blood cell and NK cell function



Mucous  
Membranes



Phagocytes

# Micronutrients- Selenium

- Supplementation
  - Recommended daily: 20-55  $\mu\text{g}/\text{day}$





# Vitamin A

- Supports structure and function of mucosal cells of eyes, lungs, gastrointestinal tract
- Promotes response to bacterial infections
- Affects growth and function of B cells
- Affects activation of T cells

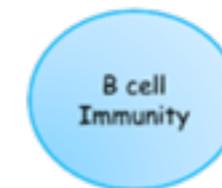
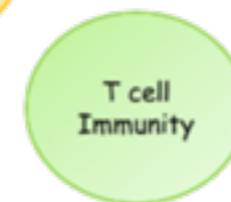
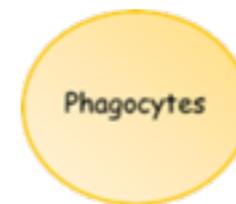
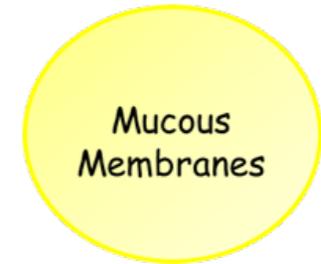


# Vitamin A

- Deficiency associated with:
  - Dry eyes, night blindness
  - Diarrhea
  - Respiratory infections
  - Fat malabsorption

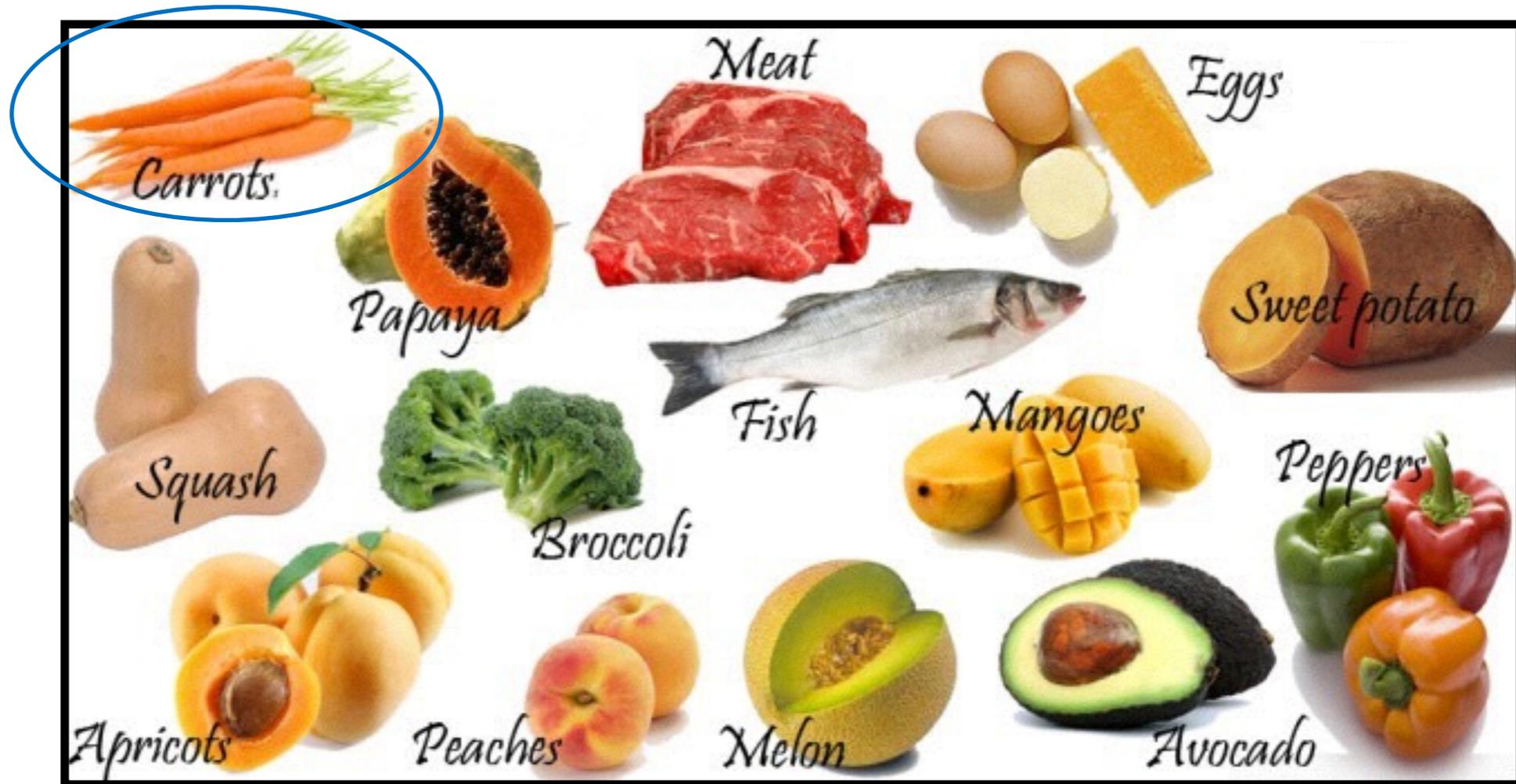
# Vitamin A

- Immune issues:
  - Loss of structure/function of cells on mucosal surfaces
    - Impaired resistance to infections, especially gastrointestinal
  - Diminished function of innate immunity
  - Impaired B and T cell responses



# Vitamin A

- Supplementation
  - Recommended: 1000-3000 IU/day





# Vitamin B

- B1- thiamin
- B2- riboflavin
- B3- niacin
- B5- pantothenic acid
- B6- pyridoxine
- B7- biotin
- B9- folic acid
- B12- cyanocobalmin

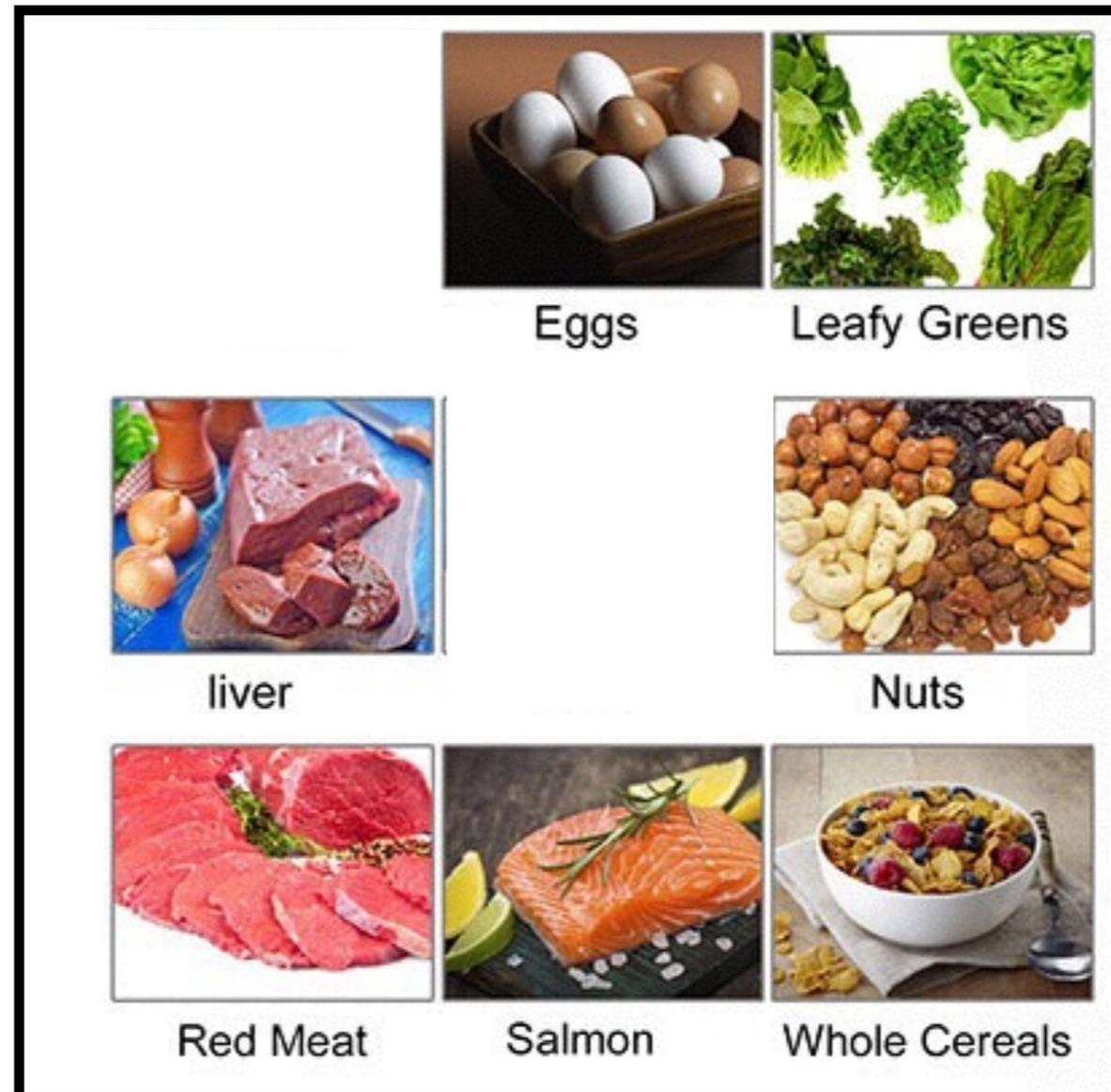


# Vitamin B

- B1- thiamin
  - Aid in antibody responses
- B2- riboflavin
  - Aid in antibody responses
- B3- niacin
- B5- pantothenic acid
  - Aid in production and release of antibodies
- B6- pyridoxine
  - Aids in T and B cell production and maturation
- B7- biotin
- B9- folic acid
  - Aids in T cell production and maturation
- B12- cyanocobalamin
  - Promotes NK cell activity, aids in T and B cell production

# Vitamin B

- Supplement
  - Range dependent on each vitamin



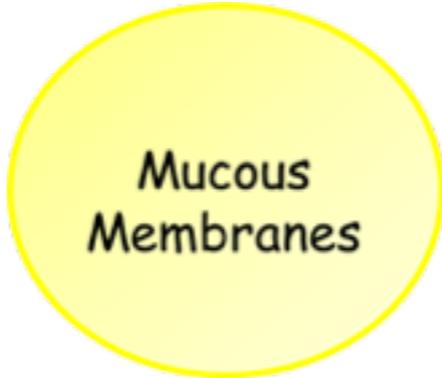


# Vitamin C

- **Antioxidant effects**
  - Protects cells from reactive oxygen species (ROS) made by the body to control infections
  - May have anti-viral activity
    - May aid in symptoms of common cold because of ROS function on surface of airway and lung epithelium
  - Improvement in both innate and adaptive immunity function

# Vitamin C

- Deficiency associated with:
  - Purpura/petechiae
  - Poor wound healing (scurvy)
- Immune issues:
  - Impaired collagen synthesis for barriers
  - Impaired antioxidant performance- increased free radical production



Mucous  
Membranes





# Vitamin D

- Necessary for phagocytic activity
- Limits inflammatory response promoted by specific T cell subtypes
- Promotes wound healing



# Vitamin D

- Deficiency associated with:
  - Rickets
  - Autoimmune diseases
  - Diabetes, type I
  - Atopic diseases

# Vitamin D

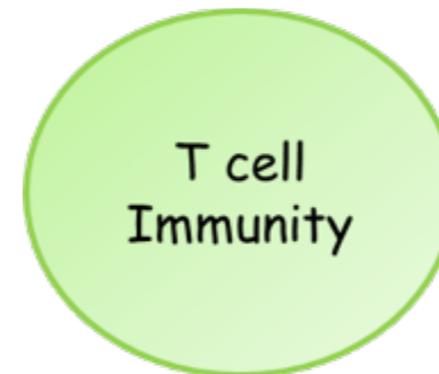
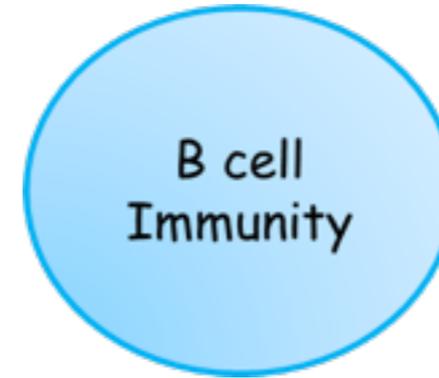
- Immune issues:

- B cells

- Decreased proliferation
- Decreased immune globulin production

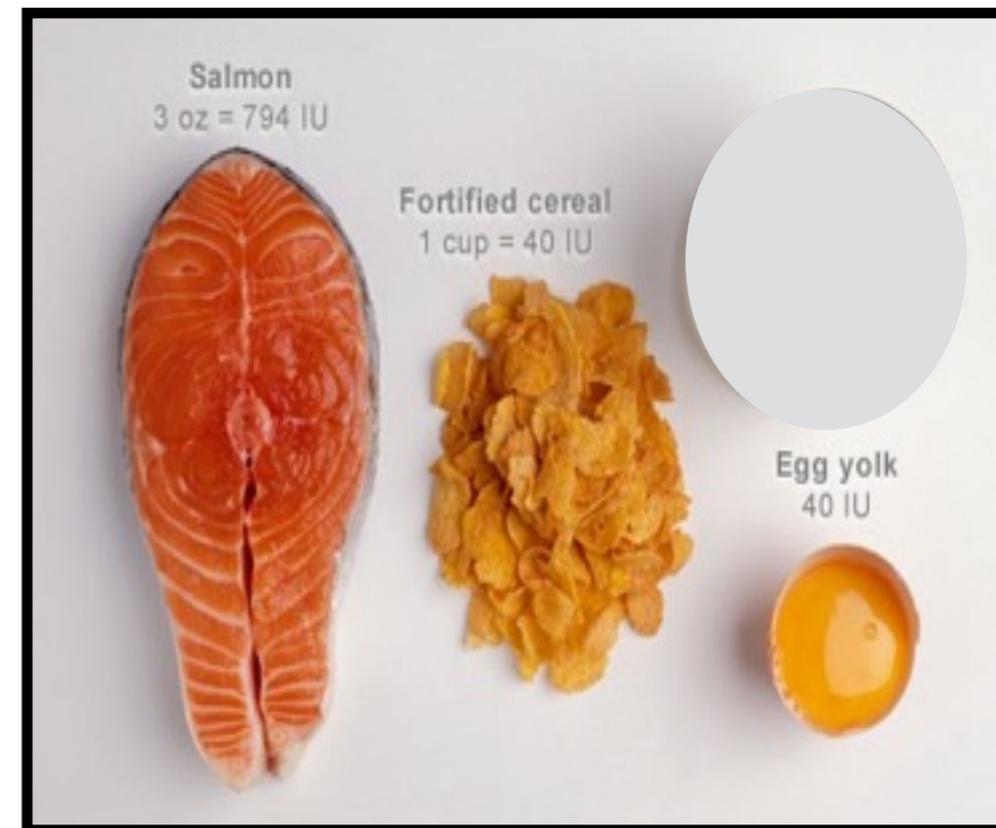
- T cells- Decrease in overall proliferation

- $T_H1$  cytokines decreased
- $T_H2$  cytokines and T regulatory cells increased



# Vitamin D

- **Supplementation**
  - Sunlight (5-30 min, 2x per week)
  - Foods- Fish, liver, fortified foods
- **Supplementation**
  - **Vitamins**
    - Ergocalciferol (D2) or Cholecalciferol (D3)
    - Recommended: 600-800 IU
    - **Replenishment: 1000-4000 IU**



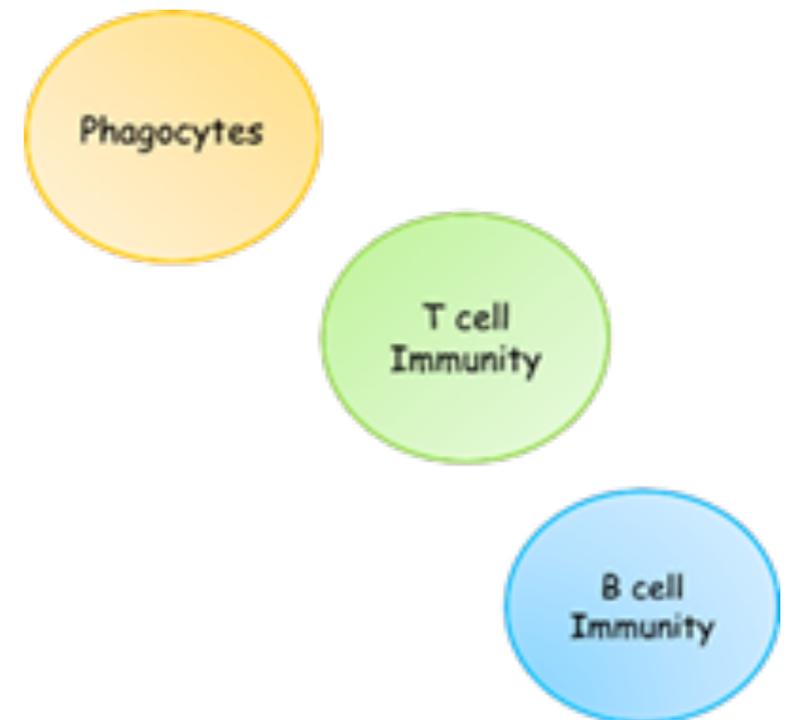


# Vitamin E

- **Antioxidant**
  - Protects against cell damage from free radicals
  - Affects innate and adaptive immunity

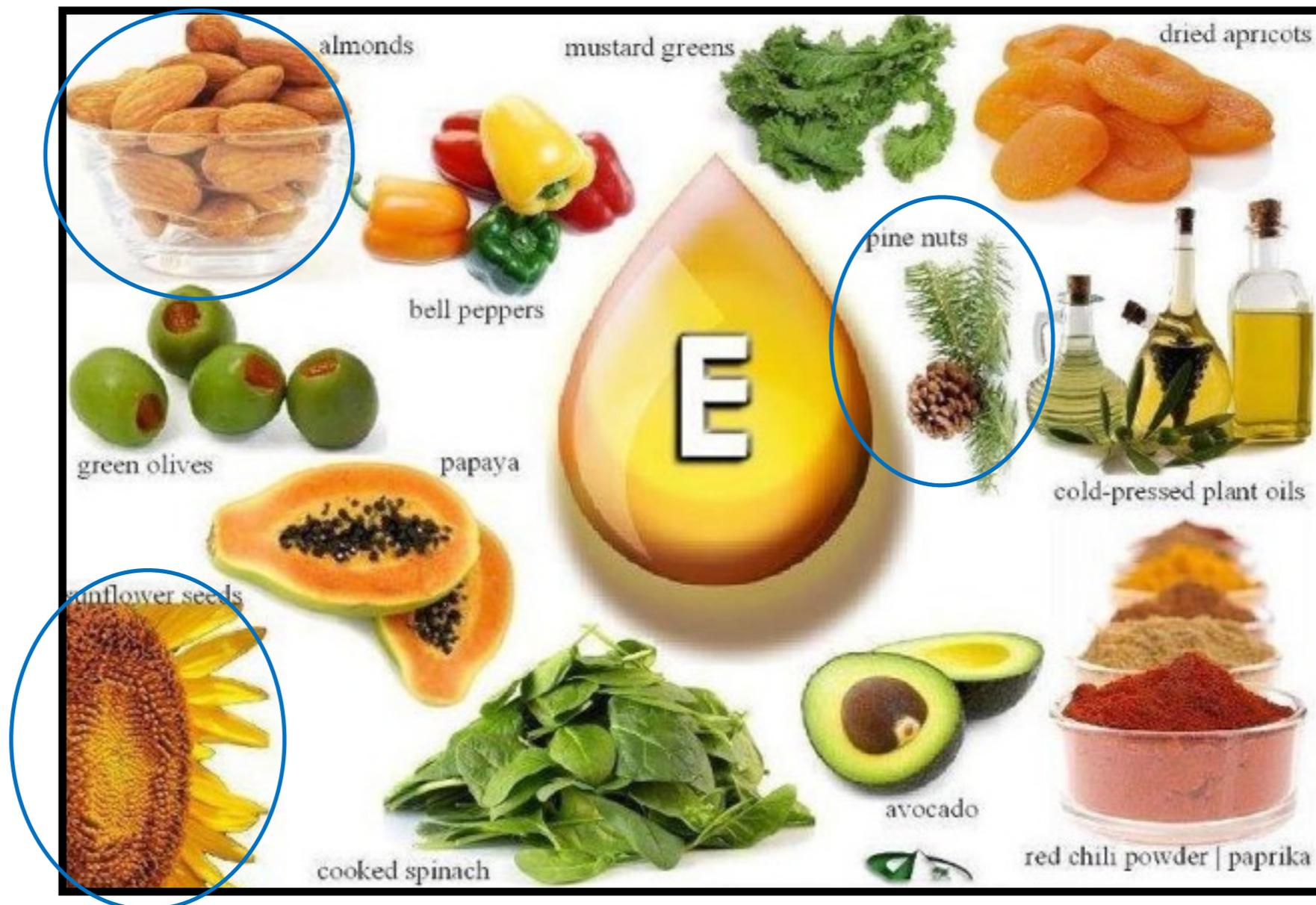
# Vitamin E

- Deficiency associated with:
  - Neurologic symptoms
  - Atopic disease
- Immune issues:
  - Loss of phagocyte responses
  - T and B cell dysfunction
  - Difficulty controlling viral infections



# Vitamin E

- Supplementation
  - Recommended: 15-30 IU/day





# Omega-3 Fatty Acids

- Polyunsaturated fats (PUFA)
  - Eicosapentaenoic acid (EPA)
  - Docosahexaenoic acid (DHA)
    - Decreased production of inflammatory cytokines
    - Increased response by white blood cells to control inflammation
    - Decrease in clotting problems, cholesterol, and triglycerides

# Omega-3/Omega-6 Ratio

- Goal is to achieve a proper ratio of  $\omega$ -3: $\omega$ -6 of 1:4
- Supplementation
  - Fish (natural ratio)
    - 3.5 oz piece = 1 g of  $\omega$ -3 FA
  - Fish oil (contains both)
    - 1-4 g/day

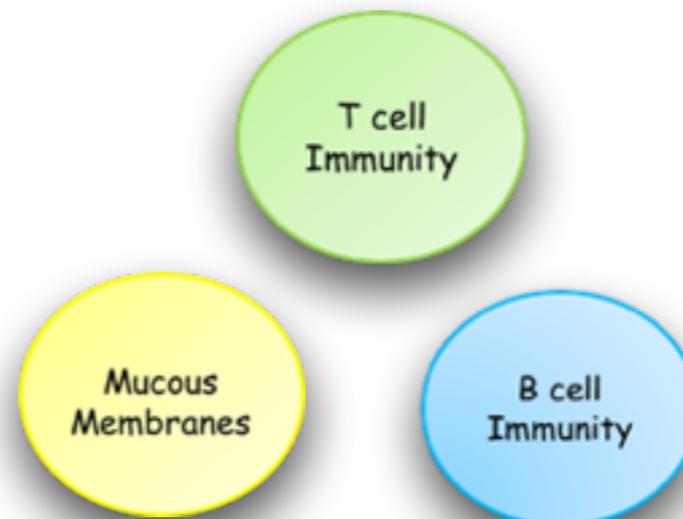
# Garlic



- Used for both food and medicine for thousands of years
- Allicin- exact function unknown
  - Anti-bacterial
  - Helps control viruses
  - Anti-fungal
- Human studies have shown short-term, laboratory effects

# Probiotic Rich Foods

- *Lactobacilli, Bifidobacteria* species
  - Strengthen gut barrier
  - Stimulate production of T cells
  - Stimulate production of antibodies
  - Must be ingested regularly for effects
- Foods with probiotics: fermentation, coconut yogurt, sauerkraut





# Overnutrition and Obesity

- Promotes inflammation
- Promotion of immune system stimulation causing autoimmunity
- Poor wound healing
- Increased susceptibility to respiratory, gastrointestinal, and liver infections



# Summary

- The best way to “boost” your immune system is to include foods naturally rich in nutrients and vitamins
  - **“EAT YOUR COLORS”**
- Avoid taking too much supplementation as it can be detrimental:
  - Toxicity (Vitamin A)
  - Inhibition of phagocytes (zinc, iron, copper)
  - Obesity in relation to food excess

# The 'Whole Food' Powerhouse



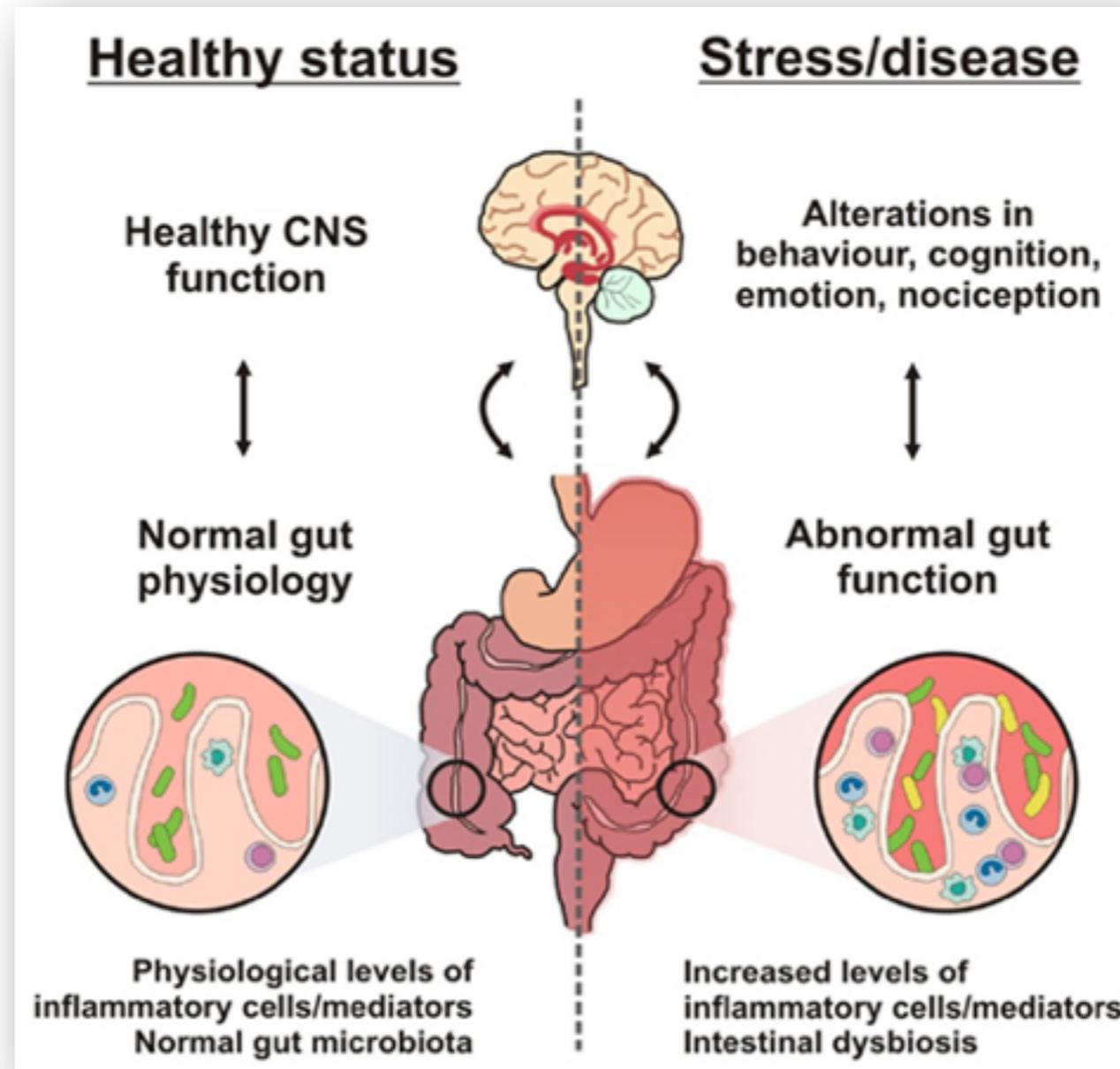
Vitamins A, C (more than an orange), B6, folic acid, iron, selenium

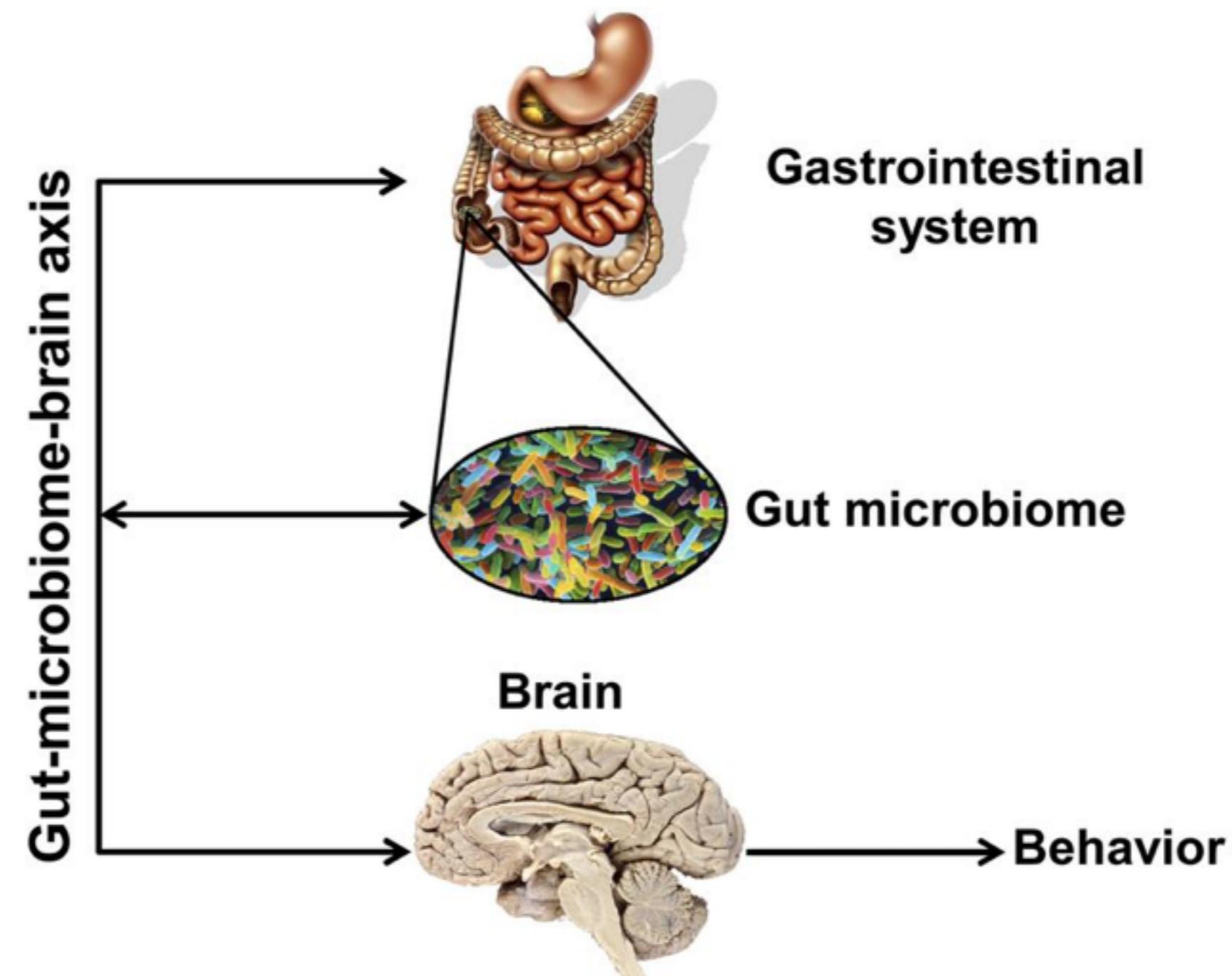
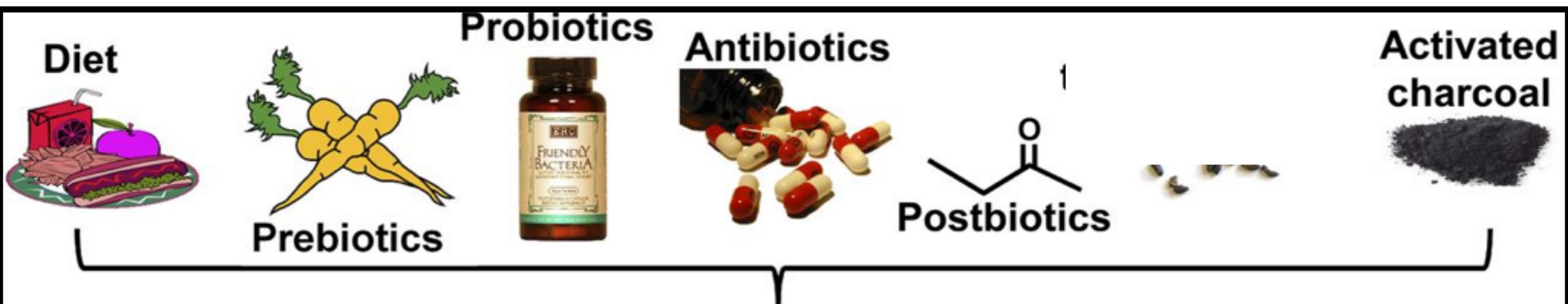
# Organic Acid Test

- Remember those neurotransmitters?
- Inhibit Dopamine Conversion to Norepinephrine
- Gut markers checking for candida, bacteria
- Nutrient Markers
- Detox Markers
- Amino Acid Markers
- Krebs Cycle Markers

## Gut-Brain Connection

Hypothalamic-Pituitary-Adrenal Axis (HPA-A) hypothalamus is in the brain, stimulate your thyroid, the Hypothalamic-Pituitary-Thyroid Axis (HPT-A.)





# Let's look at the link of certain vitamins, and their depletion, that are important in ASD

*Vitamin B6* is blocked when acetyl-aldehydes from yeast bind to proteins. B6 is very important because it acts as a co-factor, or helper, in the creation of brain chemicals known as neurotransmitters. B6 dependent enzymes help to produce serotonin, dopamine, norepinephrine and GABA. *Neurotransmitters need B6.*

*CoQ10* plays a key role in mitochondrial function. Mitochondria are the tiny organelles in your cells that make energy. It is estimated that 8-20% of autism spectrum disorder is linked directly to **mitochondrial impairment**. Recent research has also shown that women exposed to toxicity can pass on mitochondria (children only get mitochondria from their mothers) that are up to 17% damaged. CoQ10 serves as an antioxidant (protector) to all cell membranes.

# Let's look at the link of certain vitamins, and their depletion, that are important in ASD

*Vitamin C* is also very important for adrenal function, immune system and much more.

**Serotonin, Dopamine, Gaba, L-theanine**

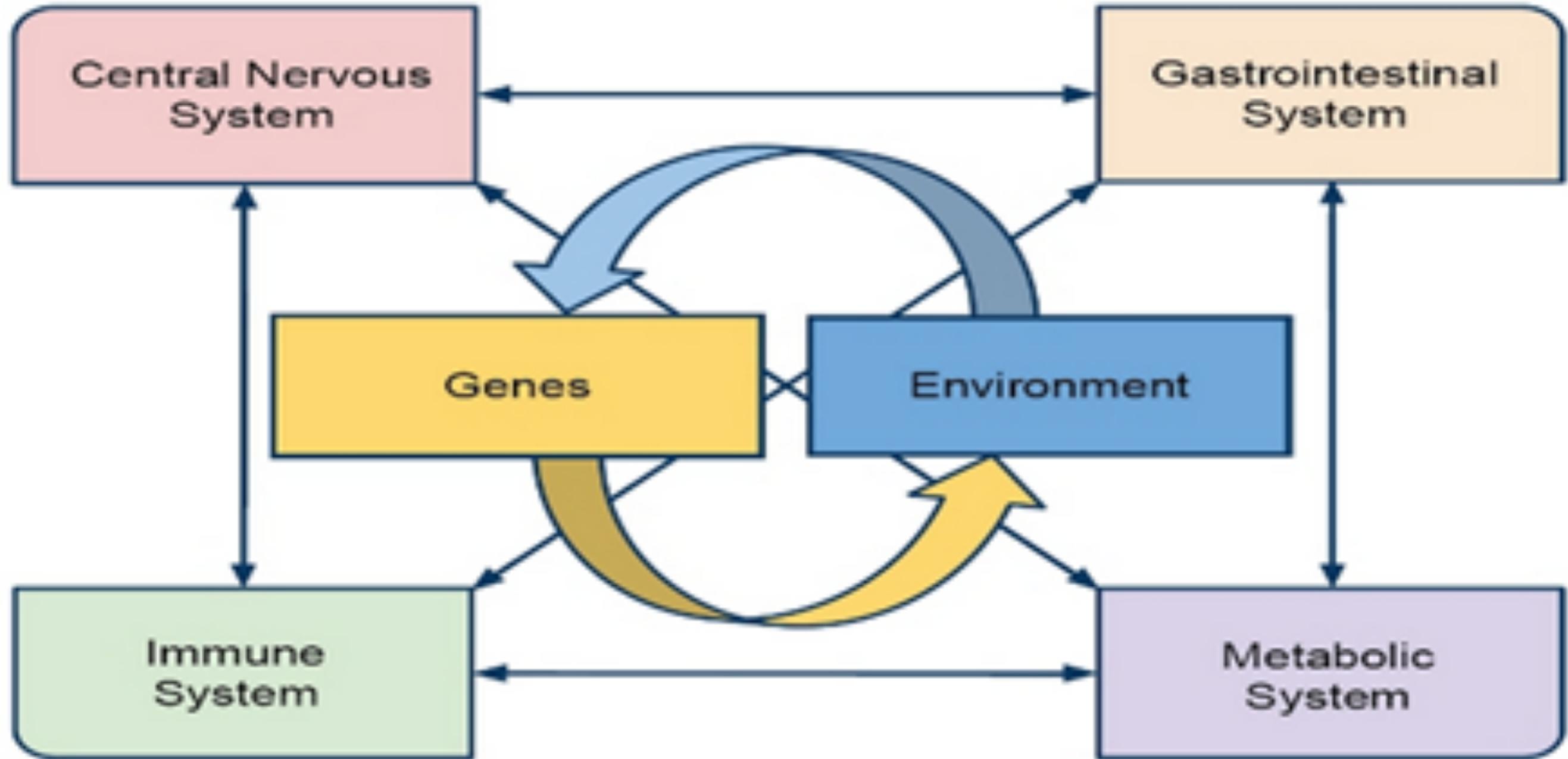
**Zinc**

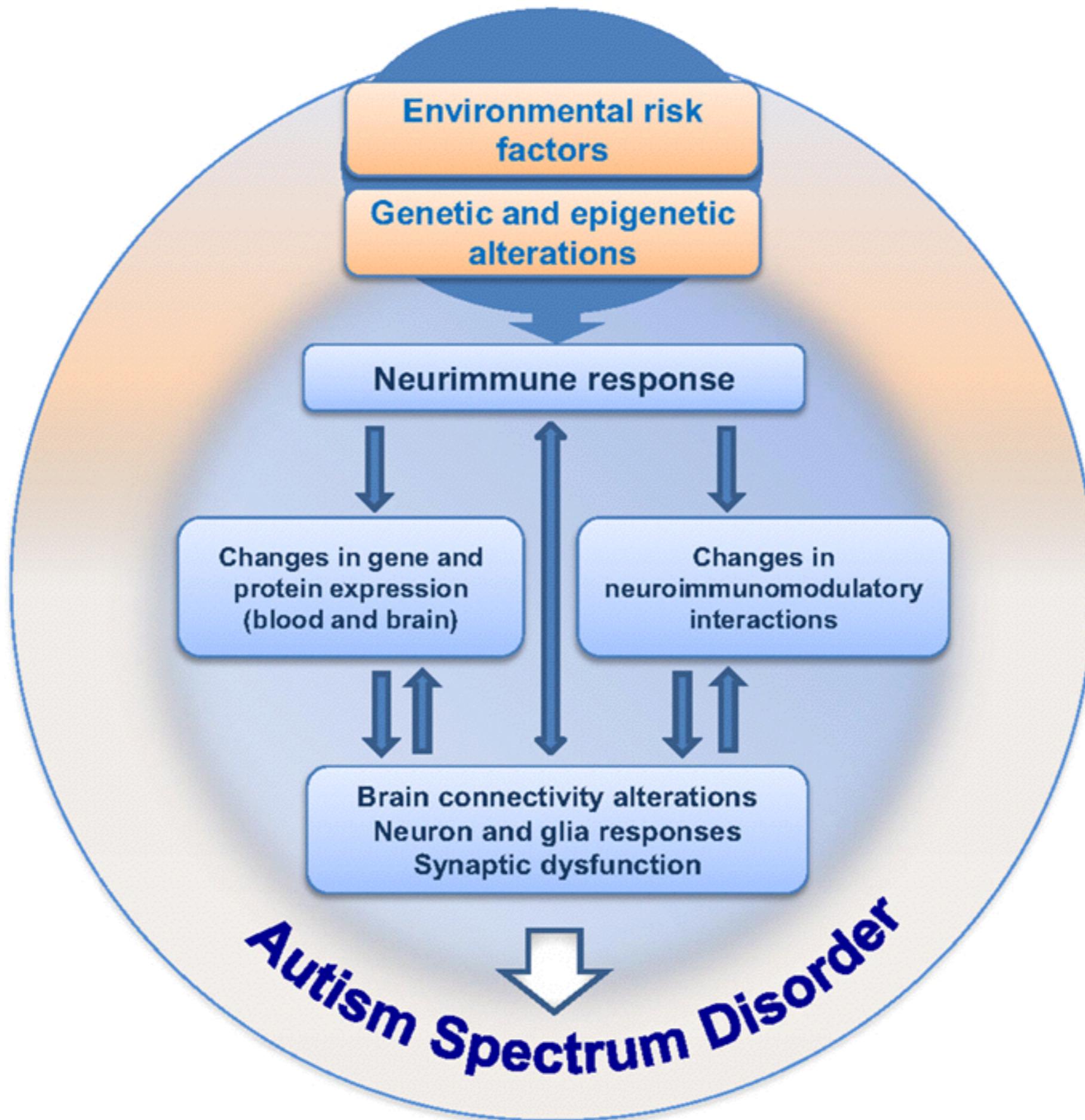
**Melatonin**

**Magnesium**

**Probiotics**









# Interesting Research

- Food-derived opioid peptides are produced in the gut, where they can exert effects on the gut intestinal epithelium, but they can also enter the systemic circulation ([42](#)) and may be able to cross the blood-brain barrier.
- Food-derived opioid peptides inhibit cysteine uptake with redox and epigenetic consequences. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4157943/#R43>

# Interesting Research

- Food additives and hyperactive behaviour in 3-year-old and 8/9-year-old children in the community: a randomised, double-blinded, placebo-controlled trial  
Food-derived opioid peptides inhibit cysteine uptake with redox and epigenetic consequences.
- <https://pubmed.ncbi.nlm.nih.gov/17825405/>

# Interesting Research

- A dysregulated LHPA axis may have far reaching implications in autism for the system does not work in isolation, rather it is intimately connected with the CNS and the immune system through a complex network of hormone-brain-behavior interactions ([Brown, 1994](#)). It is highly plausible that fundamental biological alterations in the system may contribute to atypical neurodevelopment.
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2698454/>

Remember the Core  
We Are What We Eat  
We Are What We Eat Eats  
We Are What We Absorb



# What's a Healthy Diet?

- Organic
- Unprocessed
- Whole Foods
- Single Ingredient
- Fermented foods – probiotic rich
- Grass-fed, grass-finished meats
- Healthy fats
- Omission of food intolerance, cravings, and inflammatory response foods

## **FACT:**

**Eating whole, unprocessed,  
"one-ingredient,"  
foods reduces your tendency to over  
eat calories.**

# Healthy Eating – A Balanced Diet

- A balanced diet must contain complex carbohydrate, protein, fat, vitamins, minerals, salts, and fiber.



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809 posts

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Nancy Guberti Functional Medicine Nutrition nancyguberti.com ~Speaker~Offering Wellness Membership~Look & Feel Great Method~Good Bad Ugly Nutrition [nancyguberti.com](http://nancyguberti.com)

POSTS

SAVED



# GFCF foods, organic

## GFCF foods, organic

330 Pins  
312 Followers

All my meals are Gluten-Free, casein-free, soy-free, corn-free, dairy-free & nutritious as well as really yummy:)



My Most Effective Cold & Flu Natural Remedies

2

by Nancy Guberti



Saved by Nancy Guberti



7 Green Smoothies That Taste Like Heaven - Every Home Remedy...

32



Saved by Olivia Johanson



12 Problems Tea Can Soothe

386

12 Problems Tea Can Soothe - For Your Massage Needs



Saved by Olivia Johanson



Amazingly tasty gluten-corn-soy-rice-free pasta made with...

1



Saved by Nancy Guberti



25 Planning Tips for Sundays

7

Honored to contribute to this article on healthy living...



Saved by Nancy Guberti



The Wonderful Health Benefits of Lavender Oil - And How to...

60



Saved by Olivia Johanson

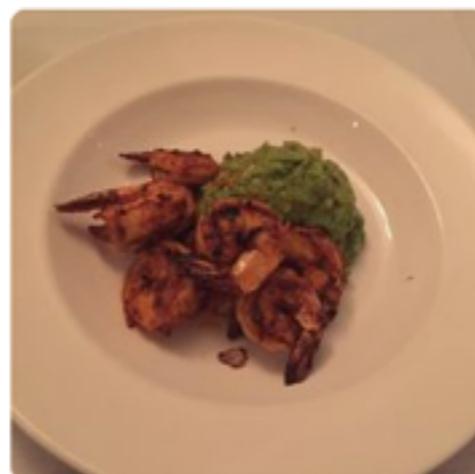


Thank you for offering gluten-dairy-soy-corn-free options

1



Saved by Nancy Guberti



1



Saved by Nancy Guberti



On the road, eating healthy is doable.

1



Saved by Nancy Guberti

?

# Food Labels

- Organic
- Natural
- Free Range
- Grass-Fed
- Grass-Finished
- Farm Raised Fish
- Conventional
- Locally grown
- GMO (genetically modified organism)



# Organic



- **100% Organic**—Foods bearing this label are made with 100% organic ingredients\* and may display the USDA Organic seal.

**Organic**—These products contain at least 95–99% organic ingredients (by weight). The remaining ingredients are not available organically but have been approved by the NOP. These products may display the USDA Organic seal.

**Made With Organic Ingredients**—Food packaging that reads “Made With Organic Ingredients” must contain 70–94% organic ingredients. These products will not bear the USDA Organic seal; instead, they may list up to three ingredients on the front of the packaging.

**Other**—Products with less than 70% organic ingredients may only list organic ingredients on the information panel of the packaging. These products will not bear the USDA Organic seal.

- Not everyone goes through the rigorous process of becoming certified, especially smaller farming operations. When shopping at a farmers’ market, for example, don’t hesitate to ask the vendors how your food was grown.

**Serving size:** The first place to start when you look at the Nutrition Facts is the serving size. The label on the container is based on a serving.

**Amount per serving:** This line tells you the number of calories per serving and the number of calories from fat.

**Calories:** This is the amount of calories in one serving. A calorie is a measure of the fuel you get from the food you eat.

**Percent daily values:** The percent daily values are based on a 2,000 calorie diet, which has 30% or less calories from fat a day. Knowing the individual value allows you to look at the information in the left column and decide whether or not these numbers fit into your daily allowance for that nutrient.

<b>Nutrition Facts</b>			
Serving Size 1 cup (228 g)			
Servings per Container 2			
<b>Amount Per Serving</b>			
<b>Calories 250</b>		<b>Calories from Fat 110</b>	
		<b>% Daily Value</b>	
<b>Total Fat</b> 12g			18%
Saturated Fat 3g			15%
<i>Trans</i> Fat 3g			
<b>Cholesterol</b> 30mg			10%
<b>Sodium</b> 470mg			20%
<b>Potassium</b> 700mg			20%
<b>Total Carbohydrate</b> 31g			10%
Dietary Fiber 0g			0%
Sugars 5g			
<b>Protein</b> 5g			
<b>Vitamin A</b> 4%			
<b>Vitamin C</b> 2%			
<b>Calcium</b> 20%			
<b>Iron</b> 4%			
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your caloric needs.			
	Calories	2,000	2,500
Total Fat	Less Than	65mg	80g
Sat Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

**Servings per container:** This lets you know how many servings are in the package. This number is very important and must be taken into account whenever you buy something that contains more than one serving. To find out how much you eat, multiply the amount in one serving and the number of servings you eat.

**Vitamins & Minerals:** The food manufacturers are required to list the amount of vitamin A, vitamin C, calcium and iron that are in this product.

# Are you drinking enough water?

- **Water makes up:**

- 75% heart and muscles

- 83% brain and kidneys

- 86% lungs

- 95% eyes

- 22% bones

- **Very important to drink clean water to replenish and restore one's body.**

# The Bad

- GMO
- Glyphosate
- Processed
- Fast Food
- Conventional – pesticides, growth hormones, antibiotics
- Artificial anything
- High fructose corn syrup
- Mercury, arsenic in food
- BVO brominated vegetable oil
- Saturated fats



# Breakfast

*Breakfast: Preferable to have protein over carbohydrates for breakfast or at the least balanced meals with more protein than carbohydrates.*

Egg Omelette with Vegetable

Simple Mills Paleo Pancakes

Organic Chia seeds warmed in coconut or almond milk with stevia (add in blueberries or strawberries)

So Delicious Coconut Yogurt with sliced almonds

Grass Finished Hamburger

Chicken Slices

Sun Warrior Pea Protein Smoothie powder

# Lunch & Dinner Meals

**Salmon and Asparagus:** 4 to 6 ounce salmon fillet seasoned with rosemary and lemon along with asparagus

## **Chicken and Supergreen Salad**

4 to 6 oz cooked chicken breasts - cubed 4 cups fresh kale leaves or spinach or arugula, 1/2 sliced apple, 1/4 cup chia seeds, 2 tsp extra virgin olive oil 1/2 lemon, juiced

## **Turkey Roll-Ups**

Turkey roll-ups are a delicious and nutritious high-protein meal, consisting of veggies wrapped inside slices of turkey breast. They are essentially a sandwich without the bread. Kale, romaine lettuce, Bibb lettuce or collard greens are great for wrapping turkey. You can also use the coconut wraps by Siete Foods.

## **Avocado and Chicken Salad**

Avocado and chicken salad is a tasty, filling and portable meal. The combination of protein from the chicken and healthy fats from the avocado is sure to keep you full and satisfied. To make this easy salad, simply combine cooked chicken breast and avocado with some seasonings and chopped veggies.

## **Hard-Boiled Eggs**

Eggs are undeniably healthy, consisting of almost every nutrient that your body needs. They are particularly high in B vitamins and trace minerals One hard-boiled egg consists of six grams of protein, which will keep you full and satisfied until your next meal.

# Lunch & Dinner Meals

365 Wild Alaskan Canned Salmon: Canned salmon is an excellent high-protein meal that you can take with you wherever you go. Just one ounce provides eight grams of protein and high amounts of a few other nutrients, including niacin, vitamin B12 and selenium. Add some extra flavor with a little bit of pepper. It tastes great when paired with chopped veggies or over salad.

Trader Joe's Turkey Nitrate Free Bacon:

Wrap in coconut wraps with either spinach or arugula. If you want to add mayo then

Homemade Soups: Chicken Soup or Vegetable Soup

Package of Chicken breasts, 3 carrots, cup of kale, 1 sweet potato, yellow onion, garlic, 3 celery, water and spices

Banza Chickpea Pasta

Whole Foods Organic 365 Chickpea Pasta or Mung Pasta

# Snacks

Fresh Vegetables like baked sweet potatoes, zucchini

Fresh Fruits

Quinn GF pretzels

Simple Mills Crackers

Daiya 'Cheese' products

So Delicious products

Applegate Farms 'deli' meats

Sun Warrior Smoothie

Enjoy Life products, GoMacro Bars

Remember to drink your water!





# Favorite gluten-free dairy-free products



# Be Empowered to Take Action

***It's time to take a stand!***

*Ask better questions and get better results.*

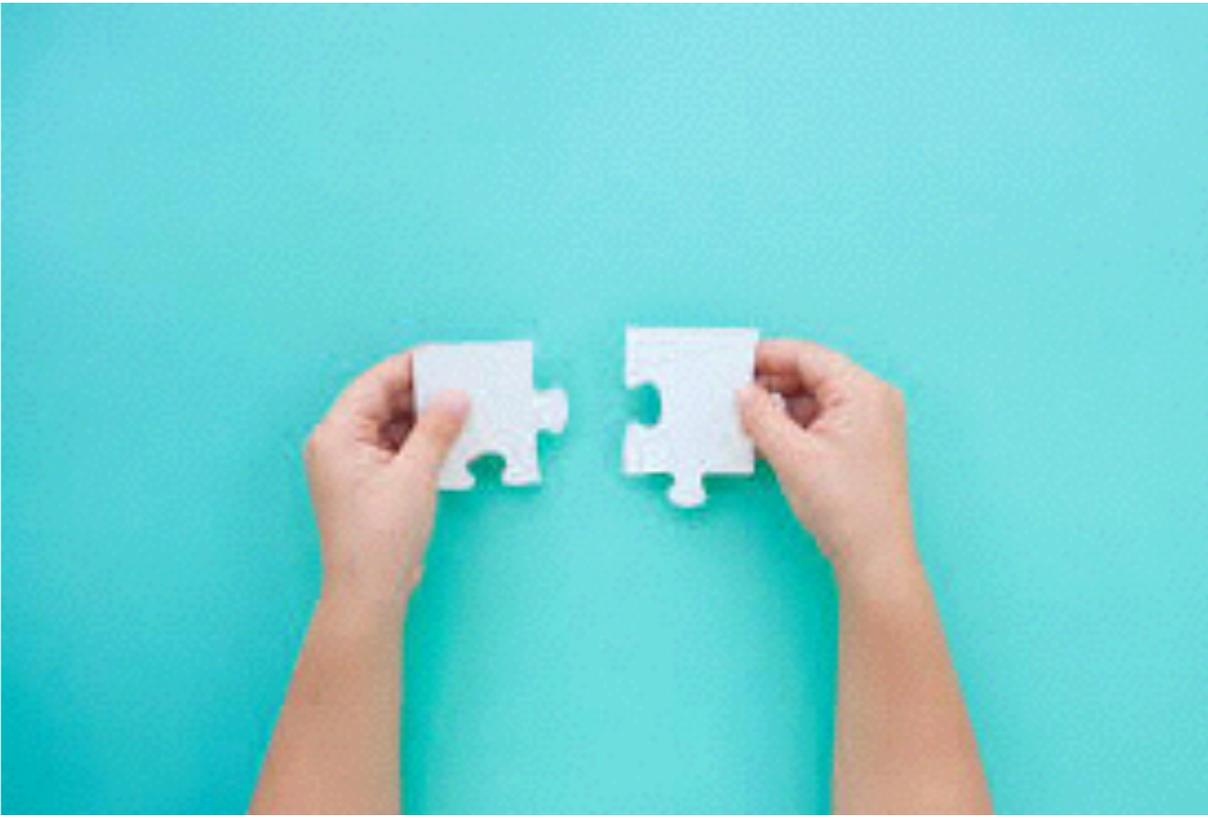
Keep food journal to track goals.  
Incorporate one change at a time.  
Keep researching and learning.

Checkout my food pictures on <https://www.instagram.com/nancyguberti/>



**THINK  
BEFORE**  
MINDFUL EATING STRATEGIES  
**YOU  
EAT**





## Week #7 - Role of Nutraceutical Customized Regime

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Learn how to customize nutraceutical regimes

Quality vs. Quantity of supplements is key

Homeopathic products

Probiotics

Enzymes

Candida protocols

Adrenal protocols

Immune Support

Brain Support

Detox Protocols